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*GT300 and GT700*

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*Installation and  
Operations Manual*

**Copyright  
Information** ≡

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**GT Installation and Operations Manual**  
*Gentner Part No. 800-110-300 (Rev. 2.00)*  
*November 1996*

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**Artwork and Illustrations:** Mike Greenhalgh, Bill Kilpack

APPROVED for connection to  
telecommunications systems specified  
in the instructions for use subject to  
the conditions set out in them.



**504121**

The connection ports on the GT300/GT700 are to be used as follows:

|                    |  |
|--------------------|--|
| Power              | Connection to the power cord provided                  |
| Speaker            | Connection to external speaker(s)                      |
| Remote Control     | Connection to external Gentner remote control          |
| RS232              | Connection to external non-Gentner remote control      |
| Room Transmit      | Connection to external mixer                           |
| Room Receive       | Connection to external mixer                           |
| Tape Record        | Connection to external tape recorder                   |
| Bridge             | Connection to additional telephone-interface equipment |
| Tape Play          | Connection to external tape player or VCR              |
| Microphone         | Connection to external microphone(s)                   |
| Four-Wire Receive  | Connection to external video CODEC                     |
| Four-Wire Transmit | Connection to external video CODEC                     |
| Telephone Line     | Connection to telephone line                           |
| Telephone Set      | Connection to telephone set                            |

This equipment complies with the requirements of the EU guidelines:



89/336/EEC "Electromagnetic Compatibility"  
73/23/EEC "Electrical operating material for use within specific  
voltage limits"

Conformity of the equipment with the above guidelines is attested by the CE mark.



Gentner Communications Corporation is committed to protecting the environment and preserving our natural resources.

This manual has been printed entirely on recycled paper.

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**Introduction** ≡

Congratulations on purchasing the GT Group Teleconferencer. All GT models use the latest digital technology, and contain a built-in microphone preamplifier and speaker driver, eliminating the need to buy additional equipment.

The GT700 supports video *and* audio teleconferencing. An echo-cancellation span of 112 milliseconds coupled with a frequency response of 7kHz (frequency response of most video systems) translates into higher audio quality.

The GT was designed to work in almost any acoustic environment using most kinds of peripheral equipment. Although many acoustic factors come into play in the design and layout of conference facilities, the GT was built with superior acoustic-cancellation features to provide the most trouble-free, acoustically pleasing conference possible. The GT series models are complete systems with with the addition of two microphones and a speaker (sold separately).

This manual explains how to install, set up and operate of your GT system. It also provides instructions on how to improve room acoustics and resolve minor technical problems, should any arise.

If you need information on how to install, set up or operate your system, please contact Gentner Communications Corporation at the location noted below. We welcome and encourage your comments so we can continue to improve our products and serve your teleconferencing needs.

**Gentner Communications Corporation**

1825 Research Way

Salt Lake City, Utah 84119

TEL: Worldwide (801) 975-7200 In U.S.A. (800) 945-7730

FAX: Worldwide (801) 977-0087 In U.S.A. (800) 933-5107

FAX-On-Demand 24-Hour Information Service (800) 695-8110

Worldwide Web Page @ <http://www.gentner.com>

**Warranty Registration** ≡

Please register your GT by completing the self-addressed, postage prepaid warranty registration card and return it to Gentner Communications by mail. You may also FAX it to the above listed fax number or call Gentner Communications. When your product is properly registered, Gentner Communications will be able to serve you better should you require technical assistance or desire to receive upgrades, new product information, etc.

**Unpacking** ≡

Ensure that the following equipment (See Figure 1, below.) was received with your shipment:

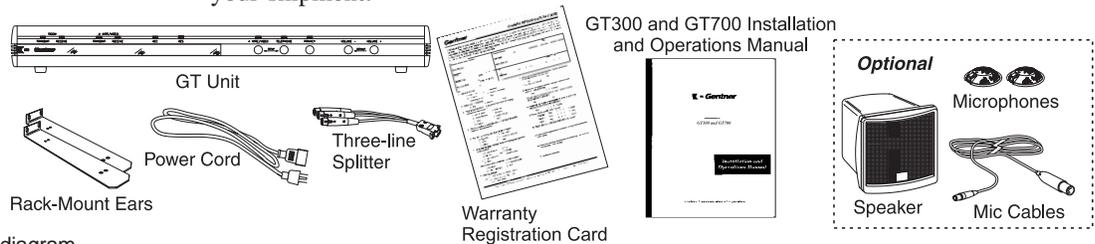


Figure 1. Equipment diagram

**SHIPPING NOTE:**

*Gentner Communications is not responsible for product damage incurred during shipment. You must make claims directly with the carrier. Inspect your shipment carefully for obvious signs of damage. If the shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.*

### **Tools Required**

- Small flat-head screwdriver (for fine tuning adjustment pots)
- Medium Phillips screwdriver (if rack mounting)

### **Features and Benefits** ≡

- Two models to meet your equipment and budget requirements
- Superior acoustic echo cancellation
- 100-percent digital audio processing
- Full-duplex operation
- Digital gain processing
- Auto answer/disconnect
- Built-in microphone preamplifier
- Built-in speaker driver
- Privacy button for private conversations
- Either two-wire (telephone) or four-wire (video) operation
- Sleek design for in-room or rack installation
- Reliable operation and setup integrity
- Optional remote control

### **Product Description** ≡

The GT series models contain superior digital echo-cancellation circuitry for both video and audio applications.

#### **Model GT300**

The GT300 operates with a 3.4kHz bandwidth and at least 112 millisecond acoustic echo-cancellation span. It is designed for use in both video and audio applications. The GT300 contains a built-in microphone preamplifier and speaker driver. This product's audio performance will serve the needs of most conferencing applications, both current and future. Your GT300 comes complete with a Quick Reference Guide, and GT300 and GT700 Installation and Operations Manual.

#### **Model GT700**

The GT700 contains superior digital echo-cancellation circuitry for both video and audio applications. The GT700 operates with a 7kHz bandwidth for higher audio quality. Due to its higher bandwidth (compatible with most videoconferencing systems), the GT700 is best suited for videoconferencing applications. This product contains a built-in microphone preamplifier and speaker driver. Your GT700 comes complete with a Quick Reference Guide, and GT300 and GT700 Installation and Operations Manual.

## **Adjustable Settings**

Both GT series models contain adjustable transmit and receive trim pots, to match your room and network equipment levels. Each system also contains a simple setup procedure, and switches for echo cancellation and echo suppression that can be individually set to accommodate your room's specific needs.

## **Echo Elimination**

Front-panel acoustic echo canceller and acoustic echo suppressor LEDs will flash green/red, graphically indicating whether echo cancellation and/or echo suppression controls are working adequately. Both GT series models operate with a 112-millisecond acoustic echo-cancellation span.

## **Noise Filtering**

Internal filters remove unwanted noise: *GT300* — below 300Hz and above 3.4kHz; *GT700* — below 50Hz and above 7kHz.

## **Two-Wire (Telephone) and Four-Wire (Video) Modes**

Both GT series models will operate in either two-wire (telephone) or four-wire (video) modes. The front panel contains a two-wire (telephone) and a four-wire (video) push-on/push-off button with LEDs to indicate which mode is active. Assuming your equipment supports it, the GT series models provide the audio in videoconferencing applications.

## **Microphones and Speakers**

The GT series models contain a built-in microphone mixer and speaker driver. This enables the system to sum audio from up to three microphones and deliver up to 3W of output power to drive a 4ohm speaker. If more microphones or speakers are required, a Gentner MPAlI Mixer/Power Amplifier may be added (an eight-channel automatic mixer with a two-channel 15W power amp).

## **Accessories**

The GT series models can be accessorized with an optional remote-control device, speakers and microphones, and all cabling required for setup. See Appendix C (Page 19) for a complete listing of accessories.

## **Before You Install**

The GT is designed to work in almost any acoustic environment. To maximize your teleconference audio quality, we recommend that you prepare your teleconferencing site by taking the following factors into consideration:

### **Acoustic Room Treatment**

Conference room treatment is recommended to improve the operation of your teleconferencing system. Rooms that have large areas of windows, white boards, hard floors, etc., are acoustically "live." These areas increase the amount of audio reverberation in the room which, in turn, reduces the audio quality of your teleconference. You should minimize the amount of audio reverberation where possible.

**Before You Install**  
**Continued** ≡

You can improve room acoustics by installing acoustic panels, drapes and other wall fabrics. Another way to improve overall room acoustics is to keep room noise (i.e. computers and fans) to a minimum.

**Power Requirements**

The GT series models automatically accommodate voltage requirements ranging from 85–240Vac 50/60Hz power. No switching is required.

**Telephone Line Requirements**

For normal two-wire (telephone) audio teleconferencing operation, your GT works on standard analog telephone lines and connects to the telephone system with a standard RJ11C modular jack. If you do not have an RJ11C jack where you want to install your GT, call your telephone company for installation.

If you are connecting your GT to a PBX system, contact your telephone-equipment manufacturer or service representative. Some PBX systems will not work with your GT. Your GT works with the same type of telephone line that a FAX machine or modem uses.

If you are using your GT for four-wire (video) conferencing, the line you need to order from your local telephone company will be specified by the CODEC, or other transceiver manufacturer whose equipment you have purchased.

**Telephone**

A single-line analog telephone set will be required at time of installation and for use during operation to initiate telephone calls.

**Video CODEC**

If you will be using the GT in four-wire (video) mode, a video circuit must be supplied by the user. This device, such as a video CODEC, uses special lines for handling transmission and reception of video and audio signals. Your equipment must match the audio input and output requirements of the GT four-wire (video) connection (i.e. transmit output and receive input). Check Specifications (Page 15) for this information.

The audio from the GT is compatible with most popular CODECs, satellite transceivers, fiber-optic transceivers or dedicated four-wire telephone interfaces, regardless of transceiver or network delays. The four-wire (video) connection is not capable of plugging directly into two telephone lines; a four-wire telephone interface is required.

**VIDEOCONFERENCING NOTE:**

*Gentner Communications strongly advises using a qualified sound contractor or audiovisual specialist when installing equipment and circuitry for videoconferencing.*

**Auxiliary Equipment**

Any auxiliary equipment to be used with the GT (i.e. microphones, speakers, recording equipment, etc.) should be available at time of installation.

**Equipment Placement**

The GT can be placed on a cart or table in the conference room or other nearby location (up to 1,000 feet from the conference room). The cabinet is designed for office or conference room display. Rubber “feet” are included to protect your table surface.

If your application requires mounting the GT in a 19" equipment rack, rack-mount ears are supplied with each GT. For rack-installation instructions, see Step 1 — Placement (below).

**Connectors/Cables**

The power cable is provided with your GT to connect the unit to an electrical outlet.

When purchased as part of a system (which includes one speaker and two microphones), the speaker wire is supplied.

**Environmental Requirements**

The GT can be safely operated in a room with varying temperatures between 32° and 100° F.

**Installation**

Follow these step-by-step instructions to install your GT:

**Completed Installation**

The following block diagram (See Figure 2, below.) shows the GT system when installation is complete.

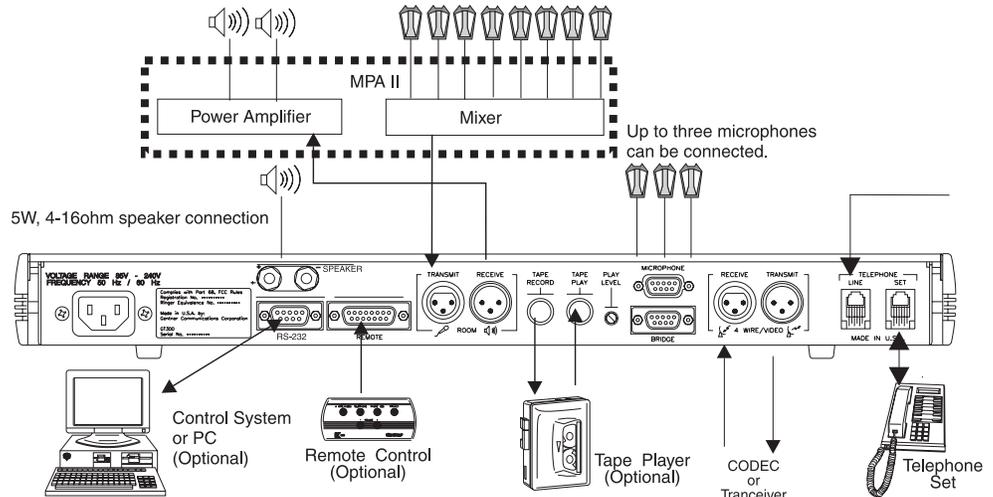


Figure 2. System block diagram

**Step 1 — Placement**

Your system is shipped for desktop or cabinet placement. Place the GT in a convenient place in the conference room, on a table, or in a cabinet.

Rack-mount ears are included in the shipment for converting to a rack-mountable unit, if desired.

- 1) Remove the two screws from the side panels and retain for later use.

**Installation**  
**Continued** ≡

- 2) Remove the decorative end caps from the side panels.
- 3) Place the rack ears on the sides of the GT unit, with the ears facing out.
- 4) Secure the rack ears to the side panels with the same screws.
- 5) Remove the rubber feet from the bottom of the GT, if necessary.
- 6) Mount the unit in a standard 19" equipment rack using the screws provided. Do not block any ventilation holes.

**Step 2 — Make Connections**

Refer to GT back panel connections (See Figure 3, below.) for a description and placement of each of the connections you will be making.

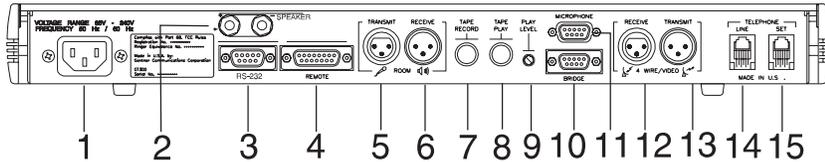


Figure 3. GT numbered back panel

VOLTAGE RANGE 85V - 240V  
FREQUENCY 50 HZ / 60 HZ

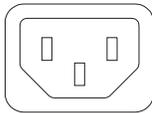


Figure 4. GT power module

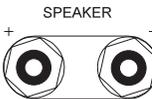


Figure 5. GT speaker connector

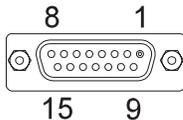


Figure 6. GT remote control DB15 connector

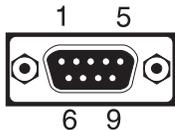


Figure 7. GT RS232 DB9 connector

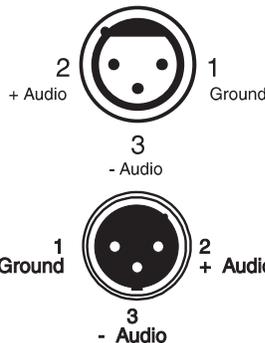


Figure 8. (Top) GT mixer audio female XLR connector; (Bottom) male XLR connector

Each connection is numbered for easy identification.

**Power**

The power cord [1] (See Figure 4, left.) will operate at any level between 85–240Vac, 50–60Hz.

**Speaker**

One 3W, 4–16ohm speaker can be directly connected to the GT (See Figure 5, left.), eliminating the need for a power amplifier. Connect the speaker wire to the + (red) and - (black) binding post connectors [2].

**Remote Control**

If using Gentner’s optional remote control, plug it into the DB15 connector [4] (See Figure 6, left.) labeled REMOTE. For pinouts, see Appendix B (Page 19).

Or

If using another manufacturer’s remote control, plug it into *either* the DB15 REMOTE connector [4], or into the RS232 connector [3] (See Figure 7, left.), depending on the manufacturer’s connector requirements. The detailed RS232 protocol is included in Appendix D (Page 19).

**Mixer Audio**

Connect the mixer’s MASTER OUTPUT to the ROOM TRANSMIT input female XLR socket [5] (Figure 8, left). This audio is sent to the remote conference site.

Connect the GT’s ROOM RECEIVE output male XLR plug [6] to the power amplifier input (PA IN on the MPA). This is balanced line-level audio (audio from the other location). This audio will be amplified and sent to the speakers.

**Auxiliary Equipment**

If an audio tape or video recorder is to be used to record both sides of the teleconference, connect a cable between the “record in” or “audio in” of your recording device and the GT’s TAPE RECORD jack [7].



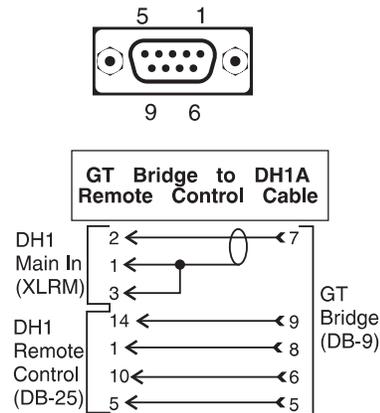
**Figure 9.** GT auxiliary equipment RCA jack

To allow for audio playback (if you want to play a recorded tape to both locations), plug in the “audio out” or “line out” connector from your VCR or audio tape device into the TAPE PLAY jack [8] (Figure 9, left). The audio is mixed with the receive audio for playback in the local room and is also sent to the remote location. If you are in two-wire (telephone) mode, it will be sent to the distant location. If you are in four-wire (video), it will be sent out the four-wire (video) transmit.

**VCR NOTE:**

*VCRs that loop record audio to the play output may cause echo and/or feedback. For more information, contact Gentner Communications at the number below.*

If an audio tape player or VCR is connected to the GT for audio transmission to the other site, turn the audio source on and adjust the PLAY LEVEL trim pot [9] on the GT’s back panel. This volume control will adjust the audio level in and out of the room.

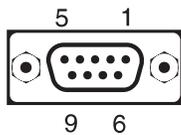


**Figure 10.** (Top) GT bridge connector; (Bottom) Bridge cable

**Bridge**

The BRIDGE DB-9 male connector [10] is used for adding additional telephone-interface equipment such as a DH1A Digital Hybrid or other audio equipment to the system. If you are running in dedicated four-wire (video) mode and need to add a two-wire (telephone) line, a DH1A is recommended. The telephone line and set is plugged into the DH1A. This configuration allows you to conference in four-wire (video) to one site and include a second site via two wire (“Phone Add”).

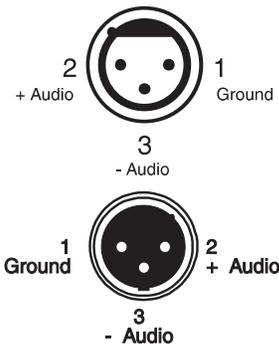
To link the DH1A with the GT, connect the BRIDGE connectors on the GT with the following cable to the DH1A (Figure 10, left).



**Figure 11.** Microphone DB9 connector

**Microphone**

Plug up to three microphones into the provided three-way splitter. Plug the splitter into the MICROPHONE DB9 connector [11] (See Figure 11, left.) to take advantage of the GT724’s internal microphone mixer. For pinouts, see Appendix B (Page 19).



**Figure 12.** (Top) Four-wire (video) receive female XLR connector; (Bottom) four-wire (video) transmit male XLR connector

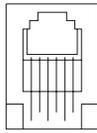
**Four-Wire (Video) Connections**

When connecting your GT to four-wire (video) equipment, connect the transceiver or CODEC output to the GT’s 4 WIRE/VIDEO RECEIVE input [11] (female XLR connector; Figure 12, left). Check your equipment manufacturer’s documentation to verify proper connector assignment and specifications.

Connect the GT’s 4 WIRE/VIDEO TRANSMIT output [12] (male XLR connector; Figure 12, left) to the input of the transceiver or CODEC. Check your equipment manufacturer’s documentation to verify proper connector assignment and specifications.

**LEVEL/IMPEDANCE NOTE:**

*Check Specifications (Page 15) for proper level and impedance for both male and female XLR connections.*



6 1

Figure 13. RJ11C telephone-line connector

**Connect Telephone**

Plug your telephone line from the source into the RJ11C LINE jack [13] (Figure 13, left).

Plug your telephone set into the RJ11C SET jack [14].

**Calibration**

The following information will help you make adjustments to optimize your system performance. Verify all components (including microphones and speakers, mixer/power amplifier, CODEC, bridged and auxiliary equipment, etc.) and all connections (See Step 2 — Making Connections, Page 5). Ensure that proper power is supplied to the GT.

**Front Panel Controls**

Refer to GT front panel controls (See Figure 14, below.) for numbered easy identification.

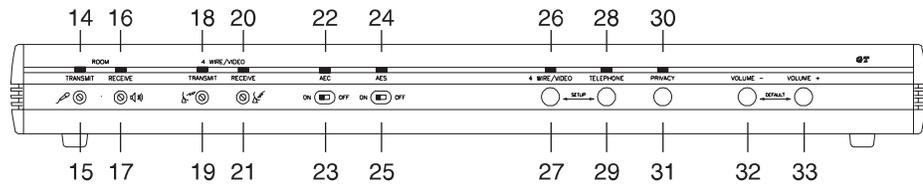


Figure 14. GT front panel controls

Move the front-panel slider to expose the trim pots and switches.

**CALIBRATION NOISE NOTE:**

*Some echo and ringing may be heard while calibrating the GT. Disregard it and continue with calibration until the end of the procedure. The echo and ringing will disappear.*

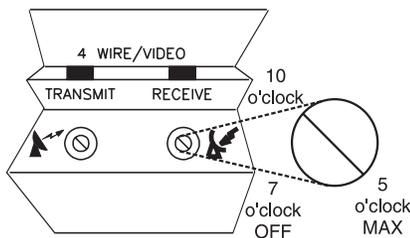


Figure 15. Factory default trim-pot position

The TELEPHONE [29] and 4 WIRE/VIDEO [27] push-on/push-off activate and deactivate the respective modes.

Place the AEC [23] switch in the ON position and the AES [25] switch in the OFF position.

Check trim pots [15, 17, 19, 21]. Each adjustment level should be in the (nominal) factory-default position (approximately one-fourth open or in the 10 o'clock position; Figure 15, left).

**Four-Wire (Video) Conference**

To initiate a four-wire (video) conference, press the 4 WIRE/VIDEO button [27]. The 4 WIRE/VIDEO LED [26] will light and the red PRIVACY LED [30] will extinguish.

**Two-Wire (Telephone) Conference**

To initiate a two-wire (telephone) conference, call the remote party using the telephone set. Wait for the party to answer, then press the TELEPHONE button [29]. The TELEPHONE LED [28] will light. Once the button is pressed, you may hang up the handset.

**Room Transmit Level Adjustment**

Someone in the local room should speak into the microphone at a normal distance, in a normal voice. The party at the other location should not speak

during the transmit adjustments.

Adjust the ROOM TRANSMIT trim pot [15] while monitoring the ROOM TRANSMIT LED [14]. The ROOM TRANSMIT LED should be solid green while the person is speaking and extinguish when the person stops.

Under normal operating conditions, the ROOM TRANSMIT trim pot [15] is typically set at a 10 o'clock position or one-fourth open (Figure 15, previous page).

#### **4 Wire/Video Transmit Level Adjustment**

##### **VIDEOCONFERENCING NOTE:**

*If you are not using the GT in four-wire (video) mode, skip to Room Receive Level Adjustment (below).*

Someone in the local room should continue to speak into the microphone from a normal distance, in a normal voice; the other party should continue to maintain silence. While the person in the local room speaks, adjust the 4 WIRE/VIDEO TRANSMIT trim pot [19] to match the input level of your four-wire (video) equipment. The 4 WIRE/VIDEO TRANSMIT LED [18] should be solid green while the person is speaking and extinguish when the person stops.

Under normal operating conditions, the 4 WIRE/VIDEO TRANSMIT trim pot [19] is typically set at the 10 o'clock position or one-fourth open (Figure 15, previous page).

##### **MULTIPOINT CONFERENCING NOTE:**

*For applications that will be used in multipoint conferencing, it is important to develop a network standard for your transmit level. All sites should conform to this level. Gentner Communications recommends a -10dBm level for multipoint networks.*

#### **4 Wire/Video Receive Level Adjustment**

Someone in the distant location should speak into their microphone from a normal distance, in a normal voice. The people in the local room should not speak during these receive adjustments. While the person speaks, adjust the 4 WIRE/VIDEO RECEIVE trim pot [21] until the 4 WIRE/VIDEO RECEIVE LED [20] is solid green and *just begins* to flash red on audio peaks.

##### **AUDIO PEAK NOTE:**

*The 4 WIRE/VIDEO RECEIVE LED [20] is the only LED that should be set to flash red on audio peaks. This level is 6dB below clipping and is the optimum level for maximum echo cancellation.*

#### **Room Receive Level Adjustment**

Someone in the distant location should continue to speak into their microphone from a normal distance, in a normal voice; the local room should maintain silence.

##### **Internal Power Amp**

If you are using the GT's internal power amp, adjust the ROOM RECEIVE trim pot [17] (while the person is speaking) for a comfortable listening level

**Calibration**  
**Continued** ≡

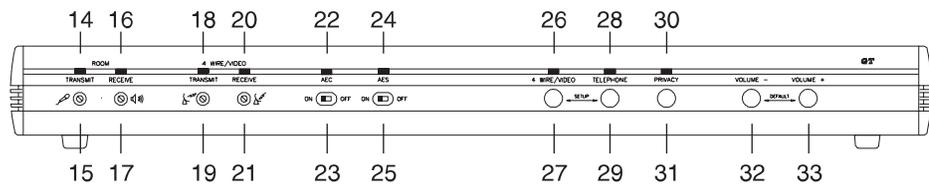


Figure 16. GT front panel controls

on the speaker(s).

**External Power Amp**

If you are using an external power amp, such as the MPAII Mixer/Power Amplifier, adjust the ROOM RECEIVE trim pot [17] to match the input level of your external power amp (Figure 16, above). Then adjust your power-amp level for a comfortable listening level on the speaker(s).

The ROOM RECEIVE LED [20] should be solid green with receive audio and extinguish when no audio is present.

**Automatic Setup**

Once the above settings and adjustments have been completed, the setup routine must be initiated. For best results, neither the party at the other location or anyone in the room should speak during the noise burst of the setup routine. (It will sound like static.) The AES switch [25] should be OFF; the AEC switch [23] should be ON.

Momentarily press the TELEPHONE [29] and the 4 WIRE/VIDEO [27] buttons simultaneously. This will transmit a white-noise burst (static) over the speakers for 25 seconds, or until the GT has adapted for maximum echo cancellation.

During normal conversation, if the AEC LED [22] stays green, no further adjustment to the AES/AEC switches need be made.

During normal conversation, it is normal for the AEC LED [22] to occasionally flash red. If the AEC LED turns solid red while the calling party is speaking at normal levels, contact Gentner Communications for setup assistance.

The AES (Acoustic Echo Suppression) switch [25] can be used to help eliminate echo in particularly harsh acoustic environments. However, in typical operating environments, this feature is not used and should remain in the OFF position.

**READJUSTMENT NOTE:**

*If you make any additional adjustments or changes on the front panel, or if any mics or speakers are moved after setup has been completed, initiating the automatic-setup routine is recommended before operating the GT.*

**Volume + and Volume -**

These front-panel controls [32, 33] should not be adjusted during calibration. Their use will be described in the Operation section (next page).

**Front Panel Security**

Now that your system has been properly installed, adjusted and calibrated, and setup is complete, your level settings can be protected from tampering by

sliding the front-panel cover to the left-most position.

## **Operation**

### ***Videoconferencing***

#### **Establishing a Videoconference**

Videoconferencing systems and networks vary, and can be as diverse as there are different manufacturers and types of networks used. Your audiovisual installer/specialist should provide the information necessary to establish your videoconference using the type of network your equipment utilizes.

Once your conference connection is established through your network, the GT will be engaged and audio will be sent to and received from the other room by pressing the 4 WIRE/VIDEO button [27] (Figure 16, previous page). The associated green LED [26] will light when in use. The audio for your videoconference will be processed through the GT, using DSP to provide the clearest audio possible along with your video transmission.

#### **Terminating a Videoconference**

When the videoconference is concluded, press the 4 WIRE/VIDEO button [27] again. The green LED [26] will go out, indicating the connection is terminated.

Your audiovisual installer/specialist should provide the information necessary to properly terminate your video transmission, depending on the type of equipment you are using.

### ***Teleconferencing***

#### **Answering a Call**

An incoming call will ring on the telephone set (the TELEPHONE LED [28] will flash rapidly during each ring). Answer the call by pressing the TELEPHONE button [29] on either the front panel or the remote-control pad. The green TELEPHONE LED [28] will turn on and the red PRIVACY LED [30] will turn off. The call may also be answered on the telephone set and then given to the GT by pressing the TELEPHONE button [29], if you prefer. (See also Auto-Answer/Auto-Disconnect Mode, below.)

#### **Making a Call**

Using your telephone set, call someone. After the other party has answered the call, press the TELEPHONE button [29]. The TELEPHONE LED [28] will light and the PRIVACY LED [30] will turn off. The GT takes control of the call and disables the telephone set. You should now hang up the handset.

#### **Disconnecting a Call**

When you are finished with the call, press the TELEPHONE button [29] again. The TELEPHONE LED [28] will turn off and the PRIVACY LED [30] will light up.

#### **Auto-Answer/Auto-Disconnect Mode**

In the auto-answer mode, the GT will automatically answer telephone calls after one complete ring.

To put the GT in auto-answer mode, make sure that a call is not currently connected. (The red PRIVACY LED [30] will be lit and the green TELEPHONE LED [28] and 4 WIRE/VIDEO LED [26] will be off). Press and hold the TELEPHONE button [29]. When the associated LED [28]

**Operation**  
**Continued** ≡

begins blinking at a slow, steady rate, release the telephone button. As long as the LED is blinking, the GT will remain in auto-answer/auto-disconnect mode. The PRIVACY LED [30] will remain lit (Figure 16a, below).

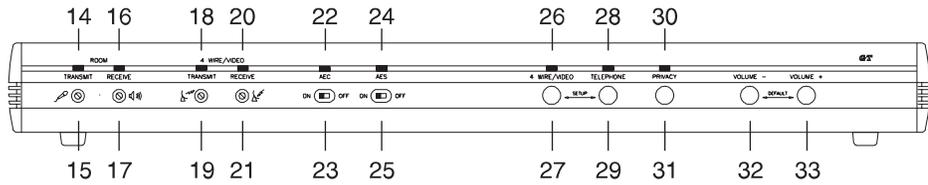


Figure 16a. Front panel controls

**AUTO-ANSWER/AUTO-DISCONNECT NOTE:**

*This mode may not function as described with some PBX systems. The difficulty with the auto-answer mode may be caused by ring timing. Auto-disconnect requires loop drop or loop reversal to function. Contact your telephone company for this signaling.*

**Terminating Auto-Answer/Auto-Disconnect Mode**

To take the GT out of auto-answer/auto-disconnect mode, make sure the GT is not currently on a call (the PRIVACY LED [30] should be lit and the TELEPHONE or 4 WIRE/VIDEO LED [28, 26] should be blinking slowly). Press and hold the TELEPHONE button [29]. Release when the TELEPHONE LED [28] turns off.

**Privacy**

If you wish to mute your conversation (so the remote parties cannot hear you), press the PRIVACY button [31]. The red PRIVACY LED [30] will light up; however, you will still be able to hear the other locations. When you want to resume two-way communication with the other parties, press the PRIVACY button [31] again. The PRIVACY LED [30] will turn off, re-establishing two-way communication with your parties.

**PRIVACY NOTE:**

*When using the PRIVACY button [31], both the two-wire (telephone) and four-wire (video) send audio is muted.*

**Increasing Listening Volume**

If the audio on the speakers is not loud enough, press and hold the VOLUME + button [33] until the desired listening level is reached. This does *not* adjust the level of the audio the other location hears.

**Decreasing Listening Volume**

If the audio on the speakers is too loud, press and hold the VOLUME - button [32] until the desired listening level is reached. This does *not* adjust the level of the audio that the other location hears.

**Restoring Listening Volume to Default**

To restore the volume level to nominal, mid-range setting, press and hold the VOLUME + [33] and VOLUME - buttons [32] simultaneously.

**VOLUME DEFAULT NOTE:**

*At the conclusion of each conference, the volume levels are automatically restored to the nominal, mid-range setting.*

### **Phone Add Option**

To use the phone-add feature, a DH1A Digital Hybrid (with telephone line and telephone set) must be added to the system. The GT and the DH1A are connected together through the BRIDGE connector [10] (See Figure 3, Page 6.) that combines the audio of both units into the teleconference. The phone add feature is used when the GT is in four-wire (video) mode and an addition site is added to the conference using the telephone connection of the DH1A. Make or receive a call from the DH1A, then press the PHONE ADD button on the remote control.

### **Remote Control Option**

The optional Gentner Remote Control contains six essential operational buttons: 4 Wire/Video, Telephone, Privacy, Phone Add, Volume + and Volume -. The 4 Wire/Video, Telephone and Privacy buttons operate exactly as their respective buttons on the GT's front panel. The phone-add feature is activated by pressing the Phone Add button on the remote control. (On GT systems not set up for phone-add operation, the Phone Add button on the remote control remains inoperational.) The 4 Wire/Video, Telephone, Privacy and Phone Add buttons each contain their respective LEDs to graphically indicate current operation mode. These four buttons are push-on/push-off in operation.

The Volume + and Volume - buttons will incrementally increase/decrease the caller's volume level, in the same manner as using the respective buttons on the GT front panel.

If using the GT in a phone-add configuration, the BRIDGE connector [10] (See Figure 3, Page 6.) contains ON/OFF control for the DH1A. These are connected directly to the GT BRIDGE connector (phone add ON/OFF, phone add STATUS). This allows control of both units with one remote device. For BRIDGE connector pinouts, see Appendix B (Page 20).

#### ***DH1A NOTE:***

*If using a DH1A, dip switch 1 on the DH1A must be in the DOWN position to allow latching, ON/OFF control.*

### **Emergency Restoration**

As long as power is maintained, your system will maintain all information the GT has "learned" about your room environment.

Following a power failure, the GT will reset itself to factory default settings. On first connection of two-wire (telephone) or four-wire (video), a three-second white noise (static) burst will automatically be emitted to quickly read the room and make internal settings for echo-elimination.

If the system is still unstable or echo is present, a full setup routine should be initiated to set the system to optimal operation. Momentarily press the TELEPHONE [29], 4 WIRE/VIDEO [27] buttons simultaneously. AEC/AES switches and volume should be kept in the position set prior to the outage. The receive volume level will reset to nominal levels. Two-wire (telephone) or four-wire (video) operation will need to be reinitiated by pressing the required button (LED will light). The telephone call will need to be redialed, when using the telephone mode.

**Operation**  
**Continued** ≡

**FOUR-WIRE (VIDEO) NOTE:**

If continual power failures occur, your GT can be programmed to automatically retrain when power is restored. To do this, connect pins 8 and 9 together on the REMOTE [4] connector (Figure 3, Page 6). The system will power up in four-wire (video) mode, train for 25 seconds, and remain in the four-wire (video) mode.

To lock the GT in the four-wire (video) mode continually, connect pins 15 and 9 together on the REMOTE connector [4]. This mode locks the unit into four-wire (video) mode and disables the 4 WIRE/VIDEO button [27] (Figure 16a, Page 12).

**When Not in Use**

When the GT is not in use, the red Privacy LED [30] will remain lit, and the green telephone LED [26] and four-wire (video) LED [28] will be off (if in auto-answer mode, they will be blinking).

**POWER NOTE:**

Power should be maintained to the unit at all times.

**Two-Wire (Telephone)**  
**Teleconferencing** ≡

The GT provides all connections necessary to perform point-to-point audioconferencing over a standard telephone line. When open microphones and speakers are used at each location, two GTs should be used (See Figure 17, below; disregard CODEC connection.), one at each location, to achieve maximum audio quality. The two locations may be either in the same building or at distant sites. Only one GT is required when the distant location is using a handset or speakerphone. If you are conferencing room-to-room, and you want to maintain full-duplex, you must use one GT in each room.

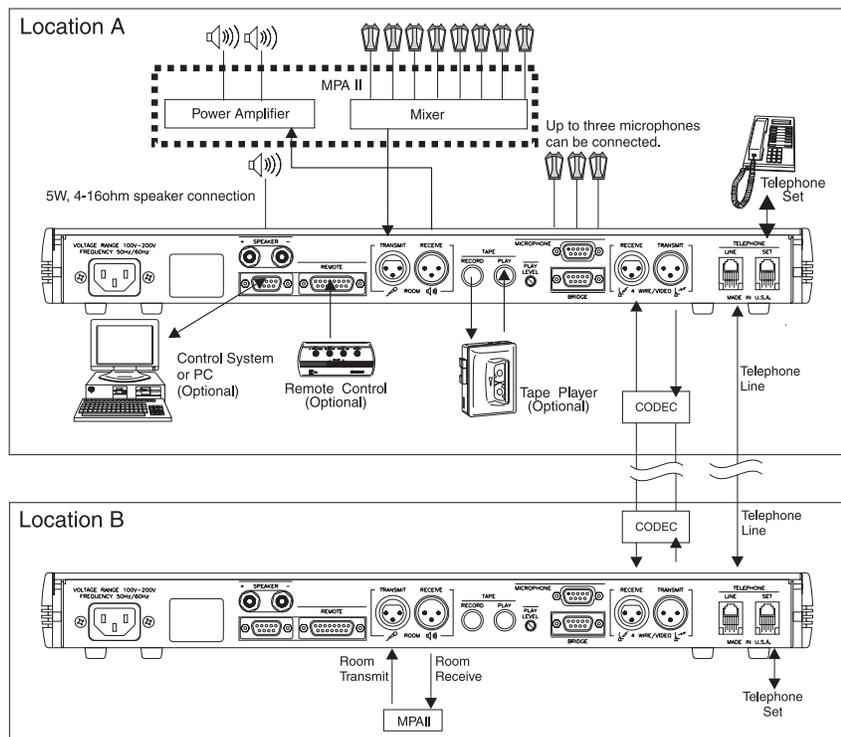


Figure 17. Two-GT connection

**GT COMPATIBILITY NOTE:**

The GT is compatible with most other manufacturer's teleconferencing equipment; however, systems with full-duplex capability are recommended.

**Four-Wire (Video)  
Teleconferencing** 

The GT can be used to provide full-duplex audio for videoconferencing applications. One GT is required to interface to a video CODEC or transceiver system at each location.

Figure 17 (previous page) illustrates a two-GT connection in a videoconferencing scenario. If using two GT for four-wire (video) conferencing *only*, disregard the telephone applications. If your application *occasionally* uses telephone (two wire) conferencing, make all connections shown

**Bridging  
Multiple Calls** 

Telephone bridge services, such as 1-800 LETS MEET, are available to connect multiple remote sites to your GT conference. The bridging service can connect all callers together then direct them to one GT. The number of distant locations that can be conferenced together is dependent upon the telephone bridge service used. Contact 1-800 LETS MEET at 1-800 LETS MEET for more information. The 1-800 LETS MEET bridge service offers the best audio quality possible when bridging your sites together.

**Specifications** 

**GT**

**Dimensions**

19"/48.3cmW x 1.75"/4.45cmH x 10"/25.4cmD

**Weight**

10 lbs./4.5 kg dry

13 lbs./5.9 kg shipping

**Connectors**

|                         |  |
|-------------------------|--|
| POWER:                  | Auto-adjusting power module  |
| REMOTE:                 | DB15 female  |
| ROOM TRANSMIT INPUT:    | 3-pin female XLR; balanced bridging >20k $\Omega$ input impedance; +4dBu nominal level, adjustable                             |
| ROOM RECEIVE OUTPUT:    | 3-pin male XLR; balanced; 50 W (designed to drive $\geq$ 600 W inputs); +4dBm nominal level, adjustable                        |
| 4 WIRE TRANSMIT OUTPUT: | 3-pin male XLR; balanced; 50 W (designed to drive $\geq$ 600 W inputs); -10dBm nominal level, adjustable                       |
| 4 WIRE RECEIVE INPUT:   | 3-pin female XLR; balanced, bridging >20k $\Omega$ input impedance; -10dBu nominal level, adjustable                           |
| RECORD OUTPUT:          | Phono connector; unbalanced; 1k $\Omega$ output impedance (designed to drive $\geq$ 10k $\Omega$ inputs); -10dBu nominal level |
| PLAYBACK INPUT:         | Phono connector; 10k $\Omega$ input impedance; -10dBu nominal, adjustable  |
| BRIDGE:                 | DB-9 male  |
| RS232:                  | DB-9 female  |
| TELCO LINE/SET:         | RJ11C  |

**Power Requirements**

85–240Vac; 50/60Hz; (Fuse) 2 amp 250Vac, Slo Blo type

**Frequency Response**

50Hz to 7kHz  $\pm$ 1dB in four-wire (video) mode; 300 to 3.4kHz  $\pm$ 1dB with 6dB pre-emphasis on transmit in two-wire (telephone) mode

**Operating Temperature**

32–100° F

Specifications are subject to change without notice.

**Warranty** 

Gentner Communications Corporation (Manufacturer) warrants that this product is free of defects in both materials and workmanship. Should any part of this equipment be defective, the Manufacturer agrees, at its option, to:

A. Repair or replace any defective part free of charge (except transportation charges) for a period of one year from the date of the original purchase, provided the owner returns the equipment to the Manufacturer at the address set forth below. No charge will be made for parts of labor during this period;

B. Furnish replacement for any defective parts in the equipment for a period of one year from the date of original purchase. Replacement parts shall be furnished without charge, except labor and transportation.

This Warranty excludes assembled products not manufactured by the Manufacturer whether or not they are incorporated in a Manufacturer product or sold under a Manufacturer part or model number.

**THIS WARRANTY IS VOID IF:**

A. The equipment has been damaged by negligence, accident, act of God, or mishandling, or has not been operated in accordance with the procedures described in the operating and technical instructions; or,

B. The equipment has been altered or repaired by other than the Manufacturer or an authorized service representative of the Manufacturer; or,

C. Adaptations or accessories other than those manufactured or provided by the Manufacturer have been made or attached to the equipment which, in the determination of the Manufacturer, shall have affected the performance, safety or reliability of the equipment; or,

D. The equipments original serial number has been modified or removed.

NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE, APPLIES TO THE EQUIPMENT, nor is any person or company authorized to assume any warranty for the Manufacturer or any other liability in connection with the sale of the Manufacturer's products.

Manufacturer does not assume any responsibility for consequential damages, expenses, or loss of revenue or property, inconvenience, or interruption in operation experienced by the customer due to a malfunction in the purchased equipment. No warranty service performed on any product shall extend the applicable warranty period.

In case of unsatisfactory operation, the purchaser shall promptly notify the Manufacturer at the address set forth below in writing, giving full particulars as to the defects or unsatisfactory operation. Upon receipt of such notice, the Manufacturer will give instructions respecting the shipment of the equipment, or such other matters as it elects to honor this warranty as above provided. This warranty does not cover damage to the equipment during shipping and the Manufacturer assumes no responsibility for such damage. All shipping costs shall be paid by the customer.

This warranty extends only to the original purchaser and is not assignable or transferable.

**Gentner Communications Corporation, 1825 Research Way, Salt Lake City, Utah 84119**

**FCC Part 15  
Compliance** ≡

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

Changes or modifications not expressly approved by Gentner Communications Corporation could void the user's authority to operate the equipment.

**FCC Part 68  
Compliance** ≡

**FCC Registration Number: FBIUSA21442BRN**  
**The Ringer Equivalence Number (REN) is 1.1B**

A label containing, among other information, the FCC registration number and Ringer Equivalence Number (REN) for this equipment is prominently posted on the top plate, near the rear of the equipment. If requested, this information must be provided to your telephone company.

USOC Jacks: This device uses RJ11C and RJ21X terminal jacks.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to obtain the maximum RENs for the calling area.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice for you to make the necessary modifications in order to maintain uninterrupted service.

If you experience problems with this equipment, contact Gentner Communications Corporation, 1825 Research Way, Salt Lake City, Utah, 84119, or by phone at (801) 975-7200 for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved.

No user serviceable parts are contained in this product. If damage or malfunction occurs, contact Gentner Communications for instructions on its repair or return.

This equipment cannot be used on telephone company provided coin service. Connection to Party Line Service is subject to state tariffs.

**IC Compliance** 

**NOTICE:** The Industry of Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by Gentner Communications. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

**The Ringer Equivalence Number (REN) is 1.1**  
**IC Certification Number: 19706306A**

**Safety**  
**Information** 

**CAUTION:** For use only with certified telecommunication equipment.

**ATTENTION:** Pour utilisation seulement avec du materiel de telecommunications certifie de marque.

## **BABT Recording Requirements**

This condition applies in circumstances where you wish to use telecommunications apparatus comprised in or connected to your system to record, silently monitor or intrude into live-speech telephone calls. (It does not apply where the apparatus in question is not telecommunications apparatus; i.e. is not apparatus that had been constructed or adapted for use in transmitting or receiving telecommunications messages.) Silent monitoring is the establishment of a receive-only transmission path to a third terminal, enabling a third party to hear the call. Intrusion is the establishment of a bothway speech transmission to another terminal enabling a third party to hear and be heard by at least one of the other parties to the call. The condition does not apply to the monitoring of telephone calls for a systems control or diagnostic purposes where the meaningful content of the call itself is monitored.

This condition provides that you should make every reasonable effort to inform all parties to a call that it may or will be recorded, silently monitored or intruded into. The particular means by which you choose to do this are not specified in the condition. Acceptable options, depending on circumstances, might include warning tones, prerecorded messages, spoken warnings by the operator or written warnings included in publicity material, telephone directories, contracts, terms of business, staff notices, etc. It may not always be possible to warn first-time callers with whom you have had no previous contact but what is important is that you have a systemic procedure in place which provides the necessary information wherever this is a realistic possibility.

For recording and silent monitoring, this condition recognises two forms of warning: a written notice before the call or a warning during the call itself. Both warnings should also inform all parties to a call why it is being recorded or silently monitored. In the case of intrusion, a warning before the intrusion takes place is sufficient as both parties will become aware that a third party has joined their conversation.

This condition does not specify the detail of how these forms of warning should be given. A written statement included in any of the following — contractual terms, conditions of employment, publicity material, staff notices, telephone directory entries — would be a possible method.

The essential point is that the equipment user must be able to demonstrate that a determined attempt has been made to reach prospective callers; as an illustration, we would expect any warning included in a company's publicity material to be presented in such a way that it would not be missed by anyone looking for that company's telephone number(s). A warning which is not clearly visibly would fail to meet this requirement.

Where the warning is to be given during the call itself, the possibilities include a recorded message at the beginning of the call or a spoken message at any time during the conversation.

You should also maintain a record of the means by which callers have been warned which the Director may request sight of. This does not mean that you have to log each phone call; rather, that should a dispute arise, it will be possible for you to show from records how callers were being made aware at the time.

This condition does not apply where apparatus is being used for the purpose of law enforcement or in the interests of national security or to calls involved the national Emergency Organisations. It also provides that other licensees may be excluded, by means of a Director's consent, where there are compelling factors that outweigh the normal expectation of privacy. Such factors might apply where security is a consideration or in the case of specialised users such as helplines. In accordance with Section 19 of the Telecommunications Act of 1984, these consents will be entered on a register open to public inspection.

This condition attempts to secure objectives similar to those which were previously achieved through an approval requirement that equipment capable of recording, silently monitoring or intruding into telephone conversations should emit warning tones as these operations take place. The removal of warning tones was permitted by an OFTEL General Variation provided that an alternative form of warning was given. The expectation is that procedures complying with the General Variation should, generally, also meet the requirements of this condition.

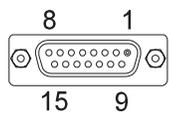
**Appendix A:  
Glossary**

Throughout this manual, you may notice some unfamiliar terms. Some of these terms and how they relate to the GT appear below.

|                                  |  |
|----------------------------------|--|
| <b>AEC</b>                       | Acoustic echo cancellation.  |
| <b>AES</b>                       | Acoustic echo suppression  |
| <b>Digital Echo Cancellation</b> | The GT digitally subtracts acoustic echo from the audio being returned to the caller. The GT digitally eliminates both direct and indirect acoustic echoes, making the conference much more intelligible.  |
| <b>Full-Duplex Operation</b>     | Both locations can speak simultaneously without interruption, because the GT does not use switching to cut off either the transmit or receive audio signals. This produces full-duplex operation.  |
| <b>Digital Gain Processing</b>   | The GT uses special digital gain processing techniques to maintain consistent audio levels within the room. Receive volume levels will be maintained consistently, even when changes occur in the other room, or telephone line conditions change. |
| <b>PBX</b>                       | Private branch exchange. This is a common form of business telephone system.   |

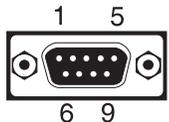
**Appendix B: Connector Pinouts**

**Table 1. Remote Control DB15 Connector Pinouts**



| Pin Number | Control                | Pin Number | Control        |
|------------|------------------------|------------|----------------|
| 1          | Ground                 | 9          | Ground         |
| 2          | Two-wire audio switch  | 10         | Two-wire lamp  |
| 3          | Four-wire audio switch | 11         | Four-wire lamp |
| 4          | Privacy switch         | 12         | Privacy lamp   |
| 5          | Phone add switch       | 13         | Phone add lamp |
| 6          | Volume up              | 14         | Not used       |
| 7          | Volume down            | 15         | Not used       |
| 8          | Four-wire mode         |            |                |

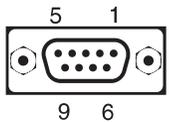
**Table 2. RS232 DB-9 Connector Pinouts**



| Pin Number | Control  | Pin Number | Control       |
|------------|----------|------------|---------------|
| 1          | DCD      | 6          | DSR           |
| 2*         | Transmit | 7          | No connection |
| 3*         | Receive  | 8          | CTS           |
| 4          | DTR      | 9          | No connection |
| 5*         | Ground   |            |               |

\* Required for computer or remote control

**Table 3. Bridge DB-9 Connector Pinouts**



| Pin Number | Control       | Pin Number | Control             |
|------------|---------------|------------|---------------------|
| 1          | Transmit In 1 | 6          | Phone Add Audio In  |
| 2          | Transmit In 2 | 7          | Phone Add Audio Out |
| 3          | Receive Out 1 | 8          | Phone Add On        |
| 4          | Receive Out 2 | 9          | Phone Add Off       |
| 5          | Ground        |            |                     |

**Technical Description**

*Transmit In 1 and 2.* Unbalanced inputs summed with the ROOM TRANSMIT XLR.

*Receive Out 1 and 2.* Unbalanced outputs derived from the ROOM RECEIVE XLR.

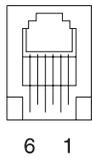
*Phone Add Audio In.* Input mixed with the RECEIVE INPUT XLR (for local speakers) and the TRANSMIT OUTPUT XLR (for remote speakers).

*Phone Add Audio Out.* Output derived from the TRANSMIT OUTPUT XLR (local room microphones) and the RECEIVE INPUT XLR (remote room microphones).

*Phone Add On.* The control/status output to communicate with the phone-add unit.

*Phone Add Off.* The status input of the phone-add unit.

**Table 4. Telephone Set and Line Connections**



| Telephone Set | Telephone Line |
|---------------|----------------|
| 1             | No Connection  |
| 2             | A-lead closure |
| 3             | Ring           |
| 4             | Tip            |
| 5             | A-lead closure |
| 6             | No connection  |

**Appendix C: Available Options**

| <u>Accessory</u>                   | <u>Gentner Part Number</u> |
|------------------------------------|----------------------------|
| Tabletop Omni Microphone           | 910-103-148                |
| Tabletop Unidirectional Microphone | 910-103-158                |
| Delta Microphone                   | 910-103-333                |
| Wall Mount Speaker                 | 910-103-010                |
| Mixer/Power Amplifier              | 910-101-001                |
| Remote Control                     | 910-110-100                |

**Appendix D: Serial Port Commands**

The RS232 serial port will accept serial commands. The commands provide the same control as the front-panel switches, except that the serial commands will not control either the AEC or the AES switches.

**RS232 Serial Port Protocol**

9600 baud, 8 bits, 1 stop bit, no parity.

When the serial port is connected to a computer, the following information will be displayed on the screen on power-up:

```

Teleconferencing Interface
Gentner Communications Corporation © 1993

Ports Initialized
POC vx.x
RAM ..... OK
CODEC ..... OK
GT300/GT700

INTERRUPTS $Revision: x.xx$
INTERRUPTS SETUP $Revision: x.xx$
BACKGROUND $Revision: x.xx$
GT MONITOR $Revision: x.xx$
    
```

The GT is now in the serial command mode. The commands that the GT will take in this mode are shown in Table 4 (below). These commands are designed to allow users to control the GT through the serial port.

The basic structure of the serial commands are one or two letters with a digit following the letters. The two letters identify the command type. The digit or lack of a digit tells the GT what to do with the current command.

**Table 5. GT Serial Port Commands**

| <u>Function</u> | <u>Command</u> | <u>Function</u>   | <u>Command</u> |
|-----------------|----------------|-------------------|----------------|
| Auto Answer     | AA             | Four-wire (video) | 4W             |
| Phone Add       | PA             | Privacy           | P              |
| Setup           | S              | Telephone         | TE             |
| Volume down     | L-             | Volume up         | L+             |

**SERIAL COMMAND NOTE:**

All commands are not complete until you hit ENTER.

**Appendix D: Serial Port Telephone**  
**Commands Continued** ≡

The TE command has the same function as te two-wire audio switch. It connects or disconnects the GT in two-wire mode.

**TE1 <CR>**

Connects the GT in two-wire mode.

The GT responds, TE1 <CR> (if connected) *or* TE0 <CR> (if not connected).

**TE0 <CR>**

Disconnects the GT from two-wire mode.

The GT responds, TE0 <CR>.

**TE <CR>**

Returns the two-wire connect state.

The GT responds, TE1 <CR> if connected *or* TE0 <CR> (if not connected).

**Four-Wire (Video)**

The 4W1 command has the same function as the four-wire video switch. It connects or disconnects the GT in four-wire mode.

**4W1 <CR>**

Connects the GT in four-wire mode.

The GT responds, 4W1 <CR> (if connected) *or* 4W0 <CR> (if not connected).

**4W0 <CR>**

Disconnects the GT from four-wire mode.

The GT responds, 4W0 <CR>.

**4W <CR>**

Returns the four-wire connect state.

The GT responds, 4W1 <CR> (if connected) *or* 4W0 <CR> (if not connected).

**Phone Add**

To put the GT in phone-add mode, send

**PA1 <CR>**

Enables phone add.

The GT responds, PA1 <CR>.

**PA0 <CR>**

Disables phone add.

The GT responds, PA0 <CR>.

**PA <CR>**

Returns the current phone-add status.

The GT responds, PA1 <CR> (if phone-add active) *or* PA0 <CR> (if phone-add inactive).

**Privacy**

The GT's privacy mode will work if the GT is connected to either the telephone lines (two wire) or the four-wire interface. To enable the privacy through the serial port, send the following characters:

**P1 <CR>**

Enables privacy mode.

The GT responds, P1 <CR>.

**P0 <CR>**

Disables privacy mode.

The GT responds, P0 <CR>.

**P <CR>**

Returns the current status of privacy.

The GT responds, P1 <CR> (if privacy is enabled) *or* P0 <CR> (if privacy is disabled).

**Volume Up and Volume Down**

The volume up command is initiated by sending the following characters:

**L+ <CR>**

Increases the volume level.

The GT responds, L+ <CR>.

**L- <CR>**

Decreases the volume level.

The GT responds, L- <CR>.

**Volume Status**

The GT will return the volume status by sending the following characters:

**L <CR>**

Returns the current volume level.

The GT responds, L+1 <CR> (for example) if the volume level is up one decibel, *or* L-3 <CR> (for example) if the volume level is down three decibels.

**Appendix D: Serial Port  
Commands Continued** 

**Auto Answer**

The GT is put in auto-answer mode by sending the following characters through the serial port:

**AA1 <CR>**

Enables auto answer.

The GT responds, AA1 <CR>.

**AA0 <CR>**

Disable auto answer.

The GT responds, AA0 <CR>.

**AA <CR>**

Returns the current auto answer state.

The GT responds, AA1 <CR> (if auto answer enabled) *or* AA0 <CR> (if auto answer disabled).

**Setup**

To put the GT into setup mode, send

**S1 <CR>**

Puts the GT into setup mode.

The GT responds, S1 <CR>.

**SETUP NOTE:**

*The GT must be connected in four-wire (video) or two-wire (telephone) mode first.*

**S0 <CR>**

Takes the GT out of setup mode.

The GT responds, S0 <CR>.

**S <CR>**

Returns the current status of setup mode.

The GT responds, S1 <CR> (if in setup mode) *or* S0 <CR> (if not in setup mode).

**SETUP EXIT NOTE:**

*The setup training will timeout after 25 seconds.*

**Status**

A special command returns the entire status of the GT in one command. The character string for the command is

**ST <CR>**

Returns the entire GT status.

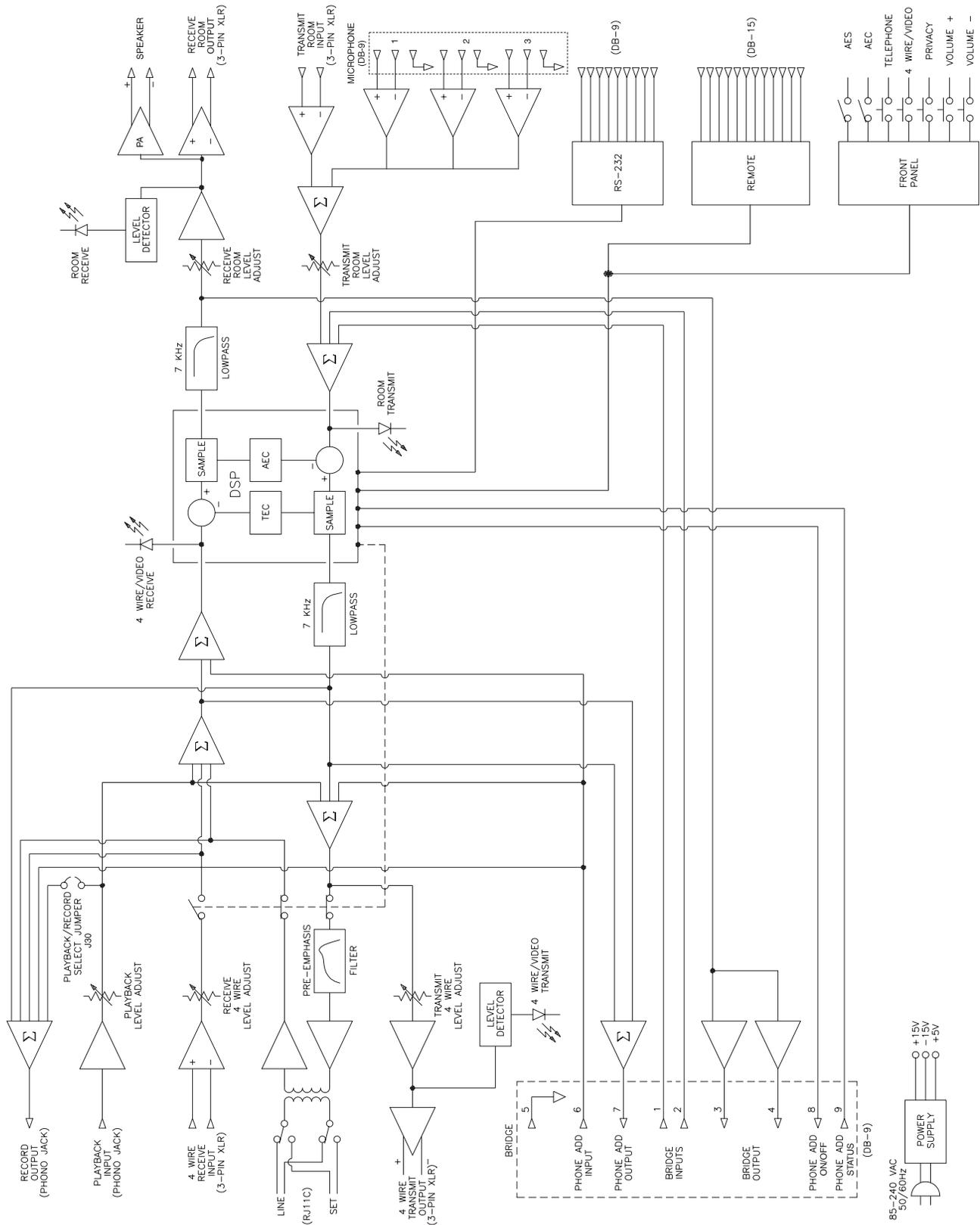
The GT responds in the following order:

- AAx
- Sx
- Lxx
- Px
- PAx
- TEx
- 4Wx

**Appendix E: PC Command Quick Reference** ≡

|          |                                   |
|----------|-----------------------------------|
| TE <CR>  | Return two-wire connect status    |
| TE1 <CR> | Connect in two-wire               |
| TE0 <CR> | Disconnect two-wire               |
| 4W <CR>  | Return four-wire connect status   |
| 4W1 <CR> | Connect in four wire              |
| 4W0 <CR> | Disconnect in four wire           |
| P <CR>   | Return privacy status             |
| P1 <CR>  | Enables privacy                   |
| P0 <CR>  | Disable privacy                   |
| L <CR>   | Return current volume level       |
| L+ <CR>  | Increase volume level             |
| L- <CR>  | Decrease volume level             |
| AA <CR>  | Return current auto answer status |
| AA1 <CR> | Enable auto answer                |
| AA0 <CR> | Disable auto answer               |
| S <CR>   | Return current setup status       |
| S1 <CR>  | Enable setup                      |
| S0 <CR>  | Disable setup                     |
| PA <CR>  | Return current phone add status   |
| PA1 <CR> | Enable phone add                  |
| PA0 <CR> | Disable phone add                 |
| ST <CR>  | Return all above status           |

**Appendix F: GT**  
**Block Diagram** 





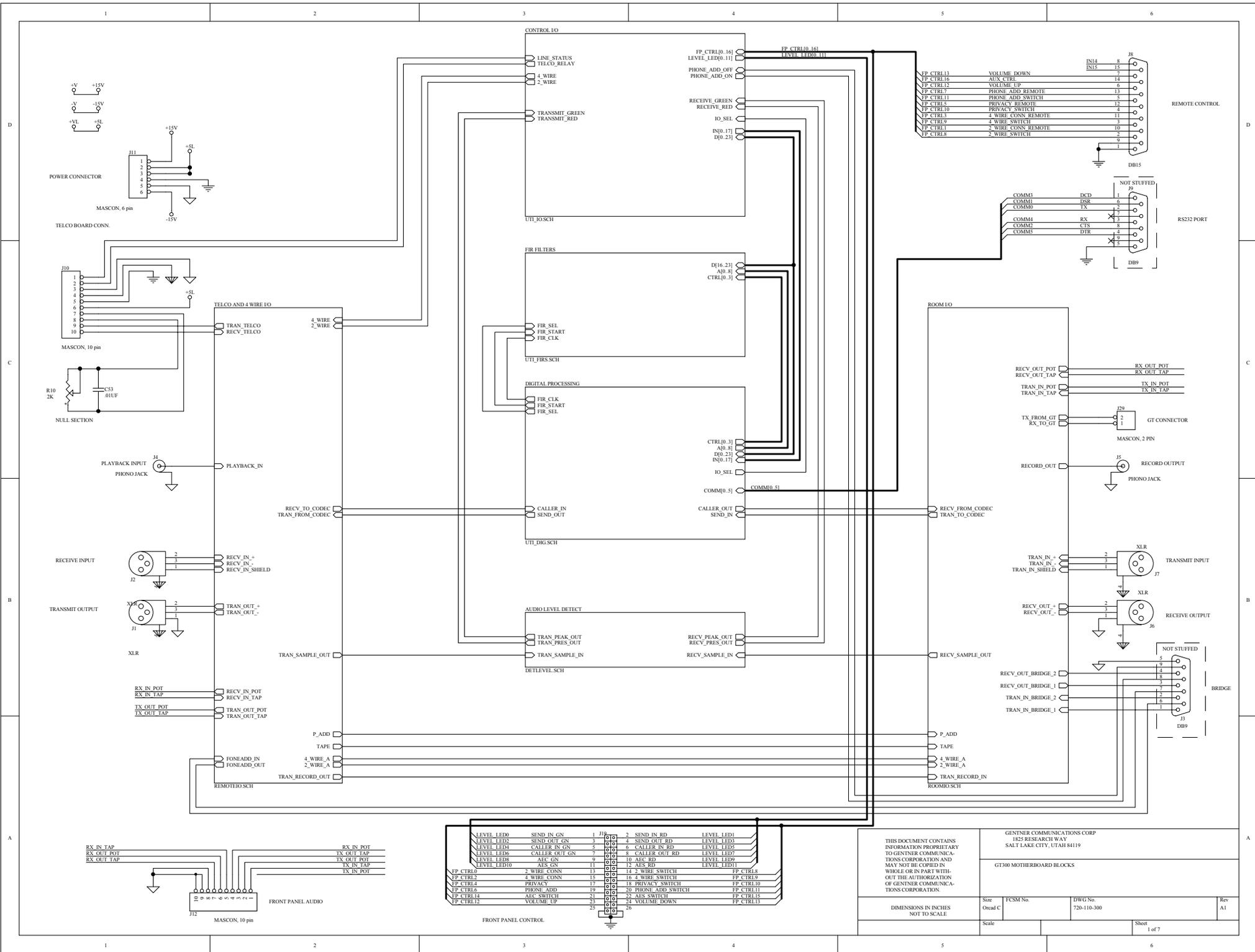
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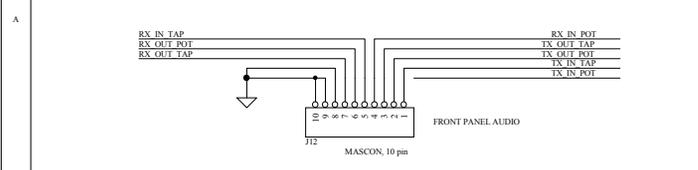
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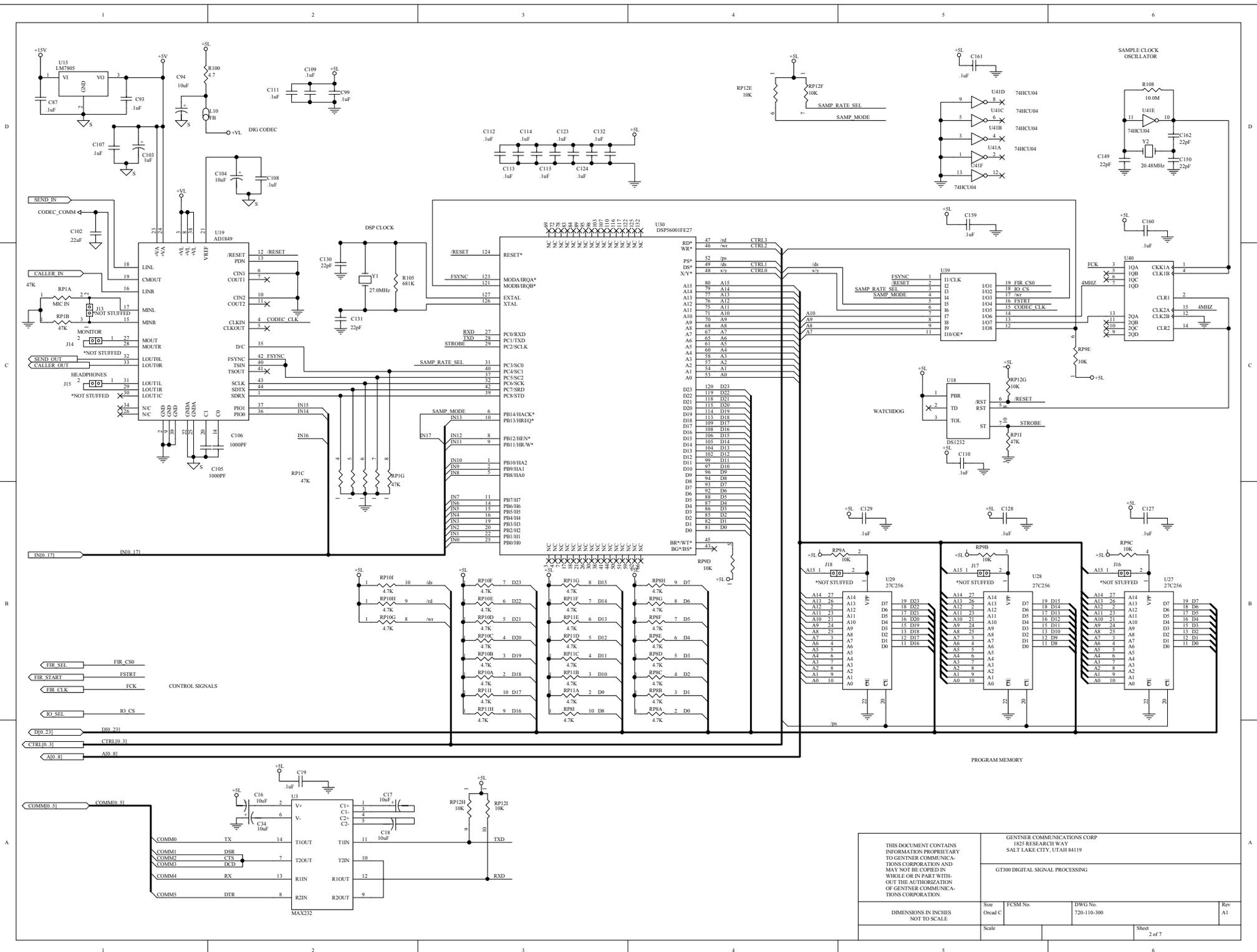
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GT300 MOTHERBOARD BLOCKS

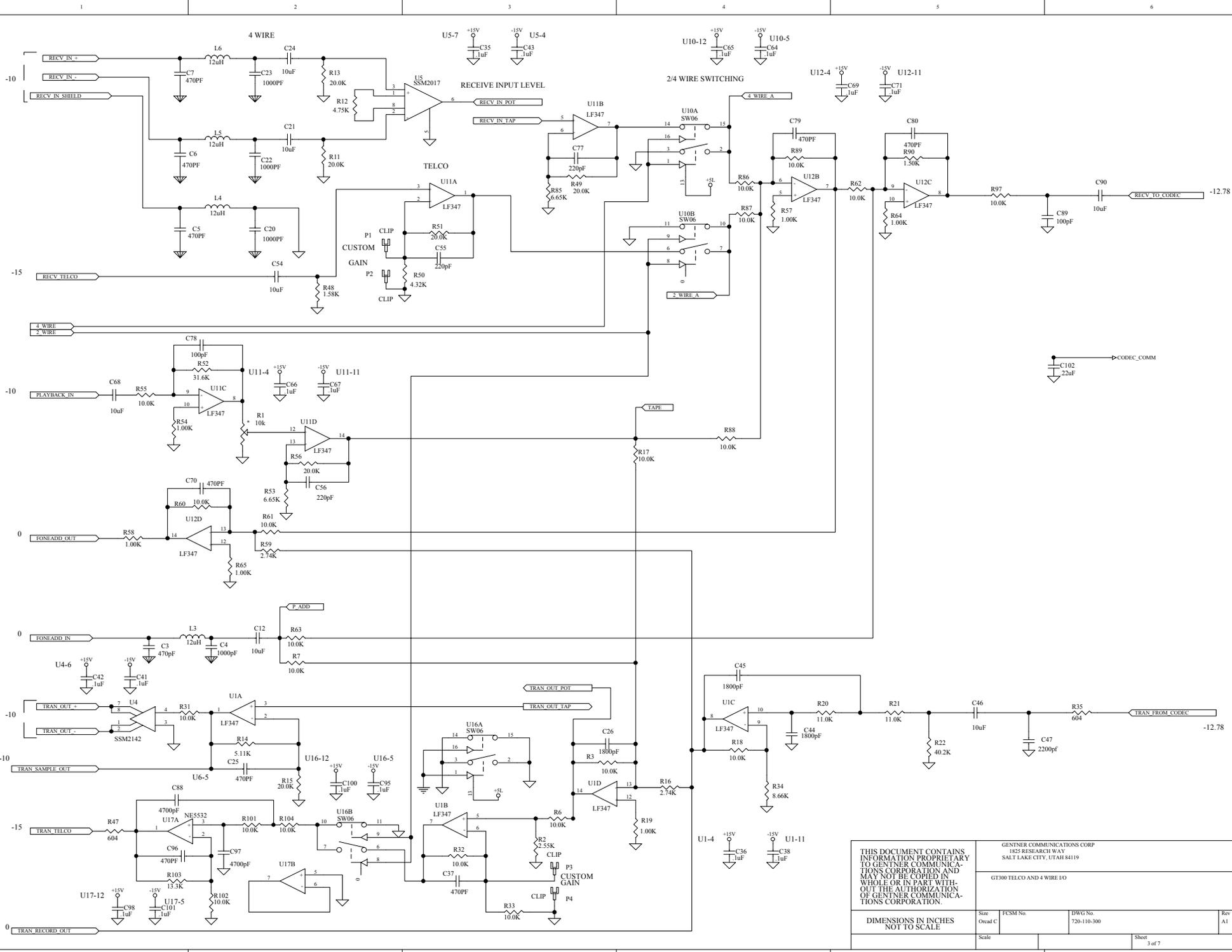
|                                      |                 |          |                        |           |
|--------------------------------------|-----------------|----------|------------------------|-----------|
| DIMENSIONS IN INCHES<br>NOT TO SCALE | Size<br>Orcad C | FCSM No. | DWG No.<br>726-110-300 | Rev<br>A1 |
|                                      | Scale           |          | Sheet<br>1 of 7        |           |

|            |               |     |     |    |                  |            |
|------------|---------------|-----|-----|----|------------------|------------|
| LEVEL LED0 | SEND IN GN    | 1   | J13 | 2  | SEND IN RD       | LEVEL LED1 |
| LEVEL LED2 | SEND OUT GN   | 3   | J13 | 4  | SEND OUT RD      | LEVEL LED3 |
| LEVEL LED4 | CALLER IN GN  | 5   | J13 | 6  | CALLER IN RD     | LEVEL LED5 |
| LEVEL LED6 | CALLER OUT GN | 7   | J13 | 8  | CALLER OUT RD    | LEVEL LED7 |
| LEVEL LED8 | AES GN        | 9   | J13 | 10 | AES RD           | LEVEL LED9 |
| FP_CTRL0   | 2 WIRE CONN   | 13  | J13 | 14 | 2 WIRE SWITCH    | FP_CTRL8   |
| FP_CTRL2   | 4 WIRE CONN   | 15  | J13 | 16 | 4 WIRE SWITCH    | FP_CTRL6   |
| FP_CTRL4   | 17            | J13 | 18  | 18 | PRIVACY SWITCH   | FP_CTRL10  |
| FP_CTRL6   | PHONE ADD     | 19  | J13 | 20 | PHONE ADD SWITCH | FP_CTRL11  |
| FP_CTRL14  | AFC SWITCH    | 21  | J13 | 22 | AFC SWITCH       | FP_CTRL15  |
| FP_CTRL12  | VOLUME UP     | 23  | J13 | 24 | VOLUME DOWN      | FP_CTRL13  |

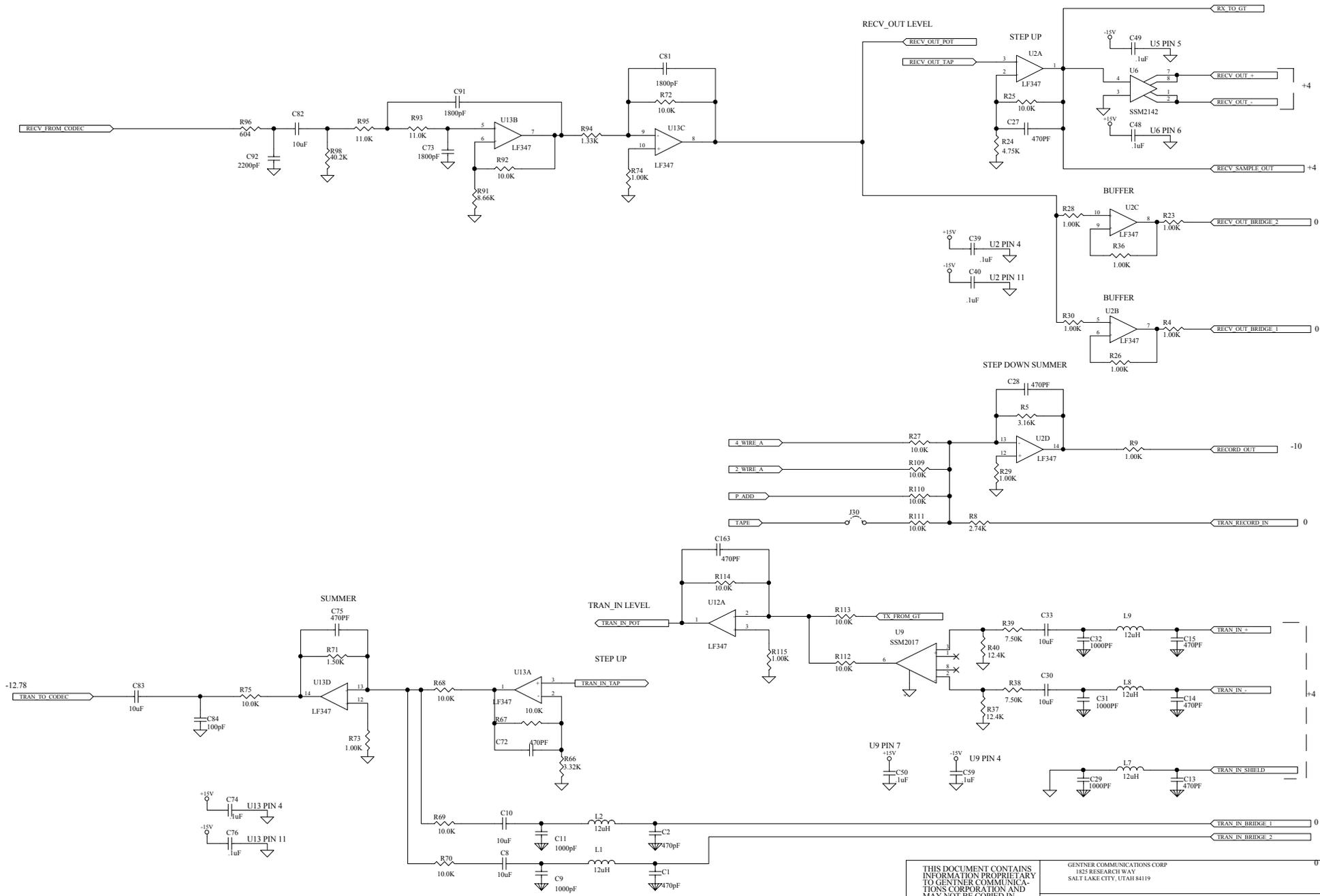




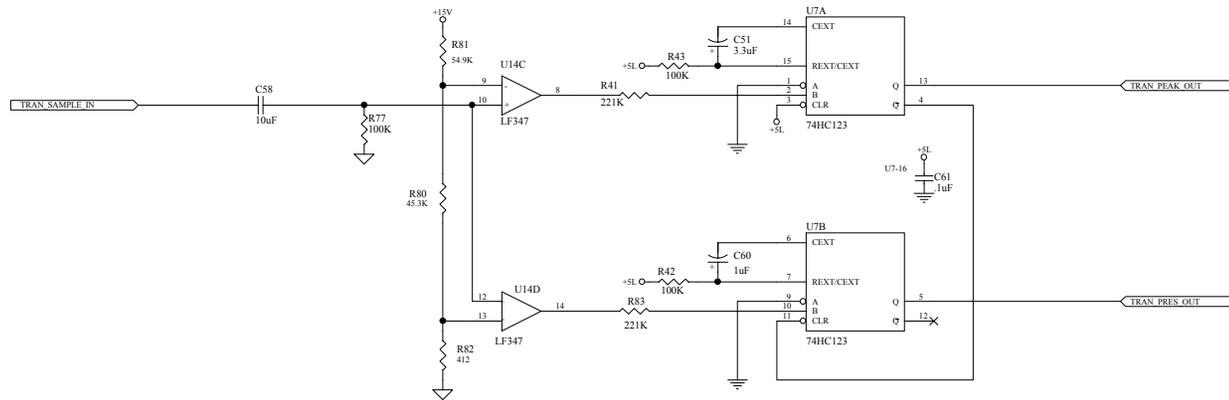
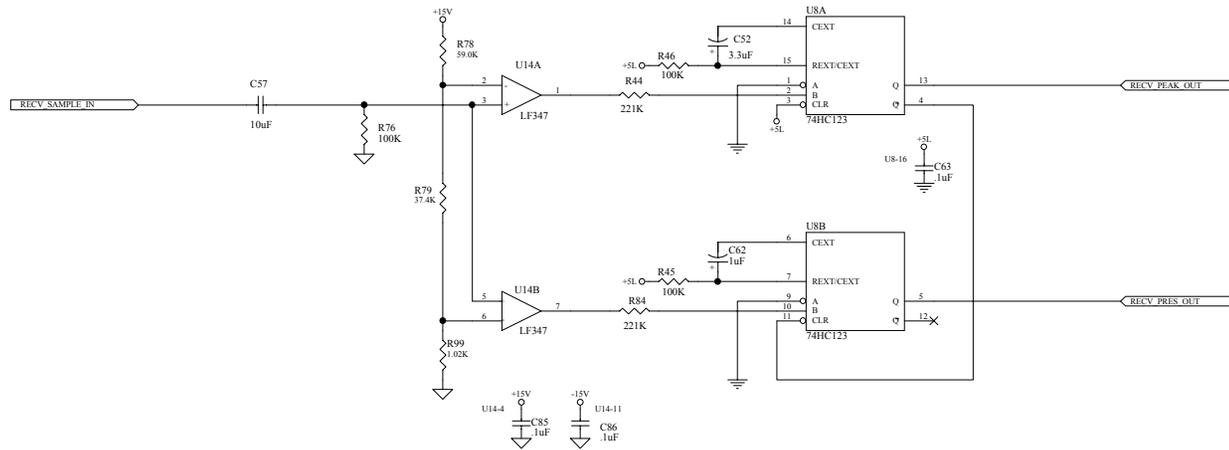
|   |  |  |                     |
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| GT300 DIGITAL SIGNAL PROCESSING   |  | Size   | FCSM No.            |
| DIMENSIONS IN INCHES NOT TO SCALE   |  | Scale  | DWG No. 720-110-300 |
|   |  | Sheet  | Rev A1              |
|   |  | 2 of 7   |                     |



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|   |  | GT300 TELCO AND 4 WIRE IO  |                        |
| DIMENSIONS IN INCHES<br>NOT TO SCALE  |  | Size<br>Overall C  | FCSM No.               |
|   |  | Scale  | DWG No.<br>726-110-300 |
|   |  |  | Rev<br>A1              |
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|   |  | GT300 ROOM 110   |                                    |           |
| DIMENSIONS IN INCHES<br>NOT TO SCALE  |  | Size<br>Overall C  | FCSM No.<br>DWG No.<br>726-110-300 | Rev<br>A1 |
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|   | GT300 AUDIO OUTPUT LEVEL DETECTORS   |          |                        |           |
| DIMENSIONS IN INCHES<br>NOT TO SCALE  | Size<br>Overall C  | FCSM No. | DWG No.<br>726-110-300 | Rev<br>A1 |
|   | Scale  |          | Sheet<br>5 of 7        |           |



