Close Talk System Description

Part Number: 60-00-9999
Revision: 1.00

Revision History:

Rev. 1.00 - 2002-05-24
First public release.

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Section 1

System Description

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Overview

Figure shows a block diagram of a conference system setup:

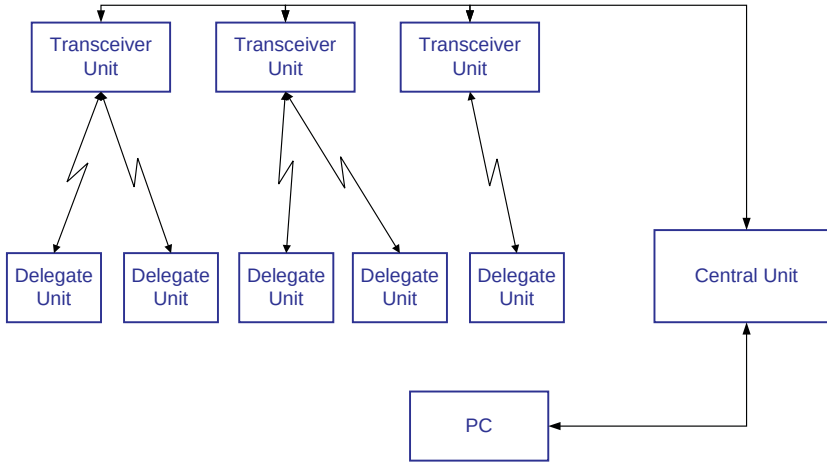

Figure 1.1 - Conference system block diagram

The Central Unit (CU) has one or more Transceiver Unit's (TU) connected which transmits and receive's the infra-red light signals to and from the Delegate Unit's (DU). There are 6 infra-red light channels available in the system:

- **Global data**
  Transmitted from the CU. Center frequency is 3.61Mhz. Contains administrative communication
- **Global audio**
  Transmitted from the CU. Center frequency is 2.92Mhz. The main audio signal received by the DU's
- **Audio channel 1 to 3**
  Transmitted by the DU's. Center frequency is 4.84MHz (channel 1), 2.38Mhz (channel 2) and 4.36Mhz (channel 3). The microphone audio signal
- **Data channel**
  Transmitted by the DU's. Center frequency is 5.61Mhz. Used for administrative communication

An optional PC can be connected to the CU serial port where the Microsoft Windows-compatible software *Close Talk Control* expands the system functionality with controllable speaker queues, roll-call, voting and more.

Central Unit

Figure 1.2 shows a block diagram of the Central Unit (CU). The TU's sends the HF signal via cables down to the FM receivers where the signal is band-pass filtered and demodulated in four channels, Audio 1 to 3 and Data.

The three audio channels contains a compressed audio signal which is expanded, mixed and band-pass filtered. The resulting signal is then distributed by the CU audio system where it is mixed with external audio, compressed and transmitted to the DU's.

The data channel is filtered and the data pulse train is extracted. The pulse train is sent to the computer for reconstruction into the system byte stream data protocol.

The outgoing system byte stream data protocol is converted by the computer to a pulse train suitable for transmission.

The computer also manages the display and controls, control noise gates, audio input- and output levels, mixer levels and communicates with a PC via the serial port.

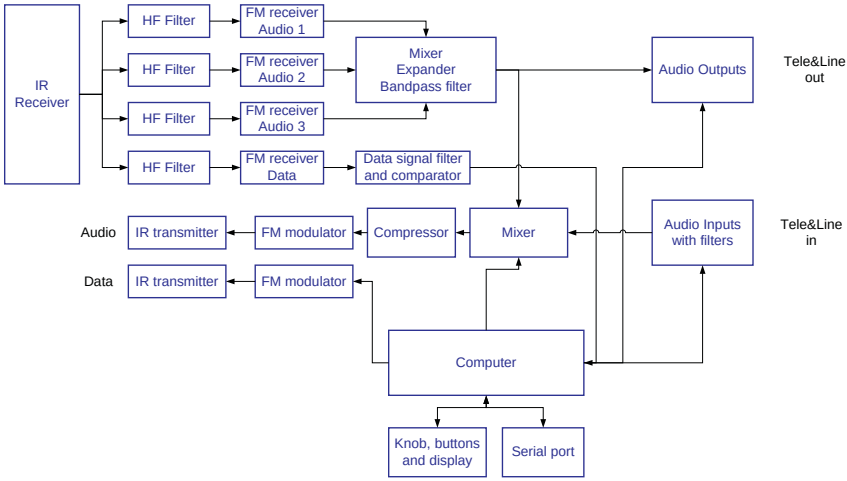

Figure 1.2 - Central Unit block diagram

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Delegate Unit

Figure 1.3 shows a block diagram of the Delegate Unit (DU). The infra-red HF signal is received and band-pass filtered by the built-in IR receiver. The resulting signal is sent to the two FM receivers, global audio and data, where it is demodulated.

The demodulated audio signal is expanded and band-pass filtered before it is sent to the speaker/headphones amplifier. The amplifier level is controlled by the computer that receives levels and volume knob span information from the CU via the data channel.

The data channel is filtered and the data pulse train is extracted. The pulse train is sent to the computer for reconstruction into the system byte stream data protocol.

The outgoing system byte stream data protocol is converted by the computer to a pulse train suitable for transmission.

The microphone signal is band-pass filtered and compressed before transmission.

The computer also manages the buttons, LED indicators and volume knob.

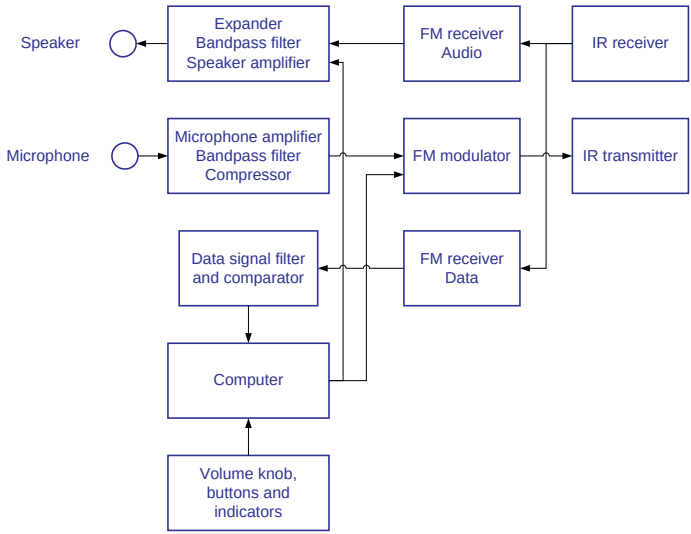

Figure 1.3 - Delegate Unit block diagram

Audio system

Figure 1.4 shows a block diagram of the system audio path:

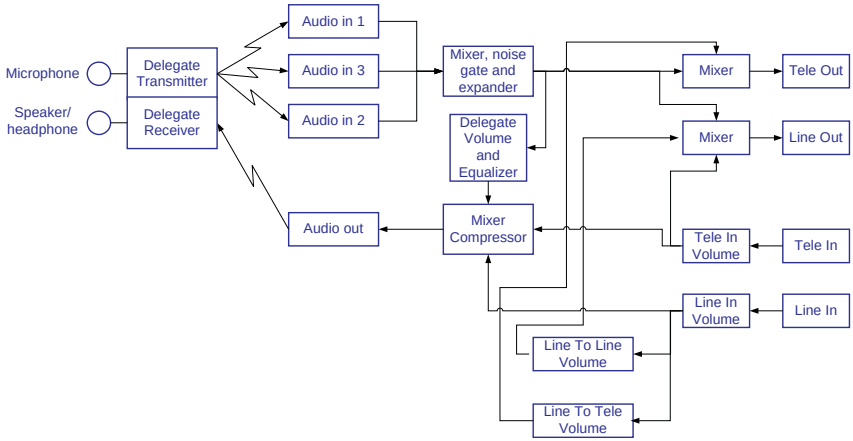

Figure 1.4 - Audio path block diagram

The DU microphone signal is sent on 3 channels to the CU where it is expanded and mixed into a single channel main audio path.

The main audio is sent straight to the Line Out and Tele Out connectors.

The main audio passes through a level control, Delegate Volume (page), and equalizer, EQ Low (page) and EQ High (page).

The Line In and Tele In connectors are mixed into the main audio signal via two level controls, Tele In (page) and Line In (page).

The main audio is then compressed and transmitted to the DU's.

A cross-coupling function is available where the Tele In signal is mixed into the Line Output after the level control. The Line In signal can be cross-coupled to Line Out and/or Tele Out via level controls, Line->Line Out (page) and Line->Tele Out (page). This built-in cross-coupling feature makes it possible to use a telephone hybrid together with a tape recorder directly without external mixers or patch bays.

The DU speaker and headphones volume levels can be controlled via the Speaker Volume (page) and Headphones Volume (page) settings, making the audio system completely controllable from the CU. The microphone level in the DU is fixed.

Section 2

Specifications

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Transmission

Media	Infra-red	
Wavelength	875nm	
Carrier	FM modulation	
Frequency	Audio (transmitted)	2.92MHz
	Data (transmitted)	3.61MHz
	Audio 1 (received)	4.84MHz
	Audio 2 (received)	2.38MHz
	Audio 3 (received)	4.36MHz
	Data (received)	5.61MHz
Data	Bit phase modulation	

Audio

Frequency response	250Hz - 6kHz (-3dB)
Dynamic range	> 40dB @ 1kHz
THD	< 1% @ 1kHz
Line In level	500mV$_{RMS}$ nominal @ 1kHz with 'Line In' setting set to 36
Tele In level	500mV$_{RMS}$ nominal @ 1kHz with 'Tele In' setting set to 35
Line Out level	500mV$_{RMS}$ nominal @ 1kHz
Tele Out level	500mV$_{RMS}$ nominal @ 1kHz
Line In impedance	20kOhm @ 1kHz
Tele In impedance	20kOhm @ 1kHz
Line Out impedance	1kOhm @ 1kHz
Tele Out impedance	1kOhm @ 1kHz

General

Serial port	RS-232C, 9 pin male D-Sub, DTE device
Display	16 characters x 2 lines backlit LCD
Firmware update	Via serial port
Security	Panel can be locked by PIN-code

Power

Power consumption	4.3W + 4W/transceiver powered by the CU
Power requirements	Use only Close Talk approved power supply

Physical

Central Unit

Dimensions (WxHxD)	234x44x276mm
Weight	1.9kg (4.2 lbs)
Mounting	Wall (check with dealer for other alternatives)
Line&Tele connector	Phono

Environment

Temperature	0 to +40 degrees centigrade

All specifications subject to change without prior notice

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