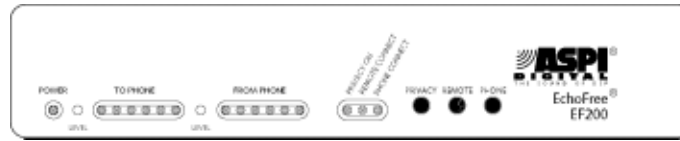


ECHOFREE[®] EF200

TELEPHONE LINE ECHO AND NOISE CANCELLER



FEATURES:

- Easily connects to an AEC (such as the ASPI Digital EF400, EF1210 or Vortex[®] EF2280) or other four-wire system to add phone calls to conferences
- ASPI's proprietary noise cancellation algorithm (patent pending) reduces ambient background noise on the phone line by 10 dB to make conversations more intelligible
- Built-in DTMF dialer and detector (accessible via RS-232)
- Built-in Caller ID feature allows conference moderators to see who is calling in
- User-set entry and exit tones give you the option to hear a pleasant tone when callers enter or leave the conference
- Automatic gain control on the receive audio path
- Privacy mode permits private conversations with the party on the telephone or people in the room
- LED bargraphs on the front panel provide visual indication of audio levels and proper system operation
- Up to 32 EF200s can be linked together to form a simple conference bridge
- Fully RS-232 controllable via Panja[®], Crestron[®], or other room controllers
- Small size - fits easily in rollabout carts or rack tray

INSTALLATION AND OPERATION

The EF200 installs between the user's acoustic echo canceller (AEC) and the phone line. This permits the telephone audio to be mixed with the local room audio, which is processed by the AEC for elimination of acoustic echoes between rooms. The combined audio from the EF200 is then fed to and from the CODEC or other A/V transmission system. The ASPI Bus on the rear panel may be used to link multiple EF200 units or provide access to other ASPI equipment, such as the EF2280 or EF1210.

An ideal companion for the EF200 is the EF400 Acoustic Echo Canceller. These two units can be purchased together as the EF600, which includes a rack mount tray and all necessary cabling. The EF200 is also the recommended phone add for the Vortex[®] EF2280 audioconferencing system.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS TELEPHONE LINE ECHO CANCELLER ("PHONE-ADD")

The Line Echo Canceller (LEC) shall connect directly to an analog (PSTN) telephone line. The line shall be a direct "outside" line or an analog single-line extension of a telephone system, and shall not contain digital signaling functions.

The LEC shall be fully automatic in its adaptation to the telephone line and shall not use noise or tones in order to establish hybrid null. The LEC shall consist of a hybrid coil with automatic adapting DSP echo cancellation. LEC convergence shall be no slower than 30 dB per second, with a total echo cancellation of 60 dB. The LEC shall have a minimum cancellation span of 30 ms. The unit shall be capable of detecting DTMF tones, call progress tones, and Caller ID information.

The unit shall provide 10 dB of ambient noise cancellation on the telephone line input. The noise cancellation shall effectively cancel steady-state ambient noise at all frequencies without causing any perceptible degradation of human voice or other transient sounds.

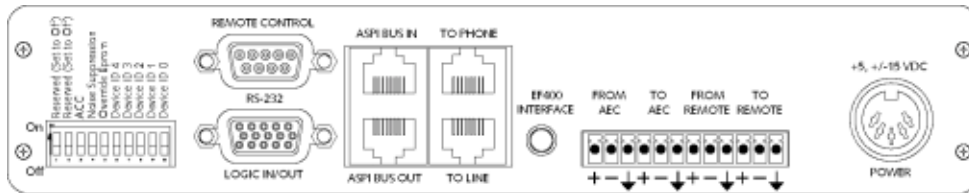
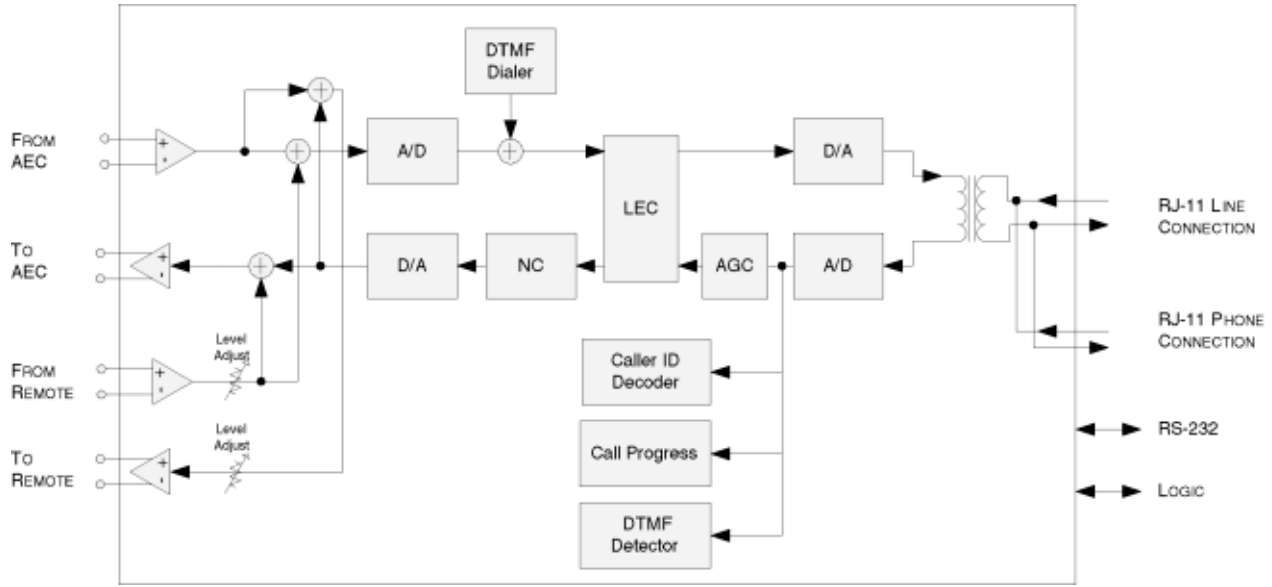
Remote control of the unit via RS-232 shall be available. The unit shall provide the ability to cascade multiple units to form a phone bridge. Logic controls shall also be provided via a DB15HDF connector.

Audio levels to and from the unit shall be balanced and shall be presented on Phoenix connectors. Remote line level inputs and outputs shall be adjustable from -20 dBu to +4 dBu, with 18 dB headroom.

The unit shall be powered by an external, UL approved supply providing +5 and +/- 15 VDC. The unit shall accept input voltage of 100 - 240 VAC, 50 / 60 Hz and shall consume no more than 15 Watts. The LEC shall be no larger than one half rack unit in size and shall comply with FCC part 15, FCC Part 68, and CE requirements.

The ASPI Digital EF200 is specified.

EF200 SYSTEM DIAGRAM AND REAR PANEL



SPECIFICATIONS

- Dimensions:** 8.25" (210 mm) W x 8.25" (210 mm) L x 1.75" (45 mm) H (1/2 rack unit)
- Weight:** 2 lbs. (1 kg)
- Connectors:** Audio: Mini (3.5mm) quick connect terminal blocks
RS-232: DB9F
Logic In/Out: DB15HDF
ASPI Bus In / Out, Telephone Line / Set: RJ45 (RJ11 plugs may be connected to Line / Set jacks)
- Power:** External supply; provides +5 and +/- 15 VDC to unit. Input 100-240 VAC, 50/60 Hz, power consumption <15 W
- Output - TO AEC:** Balanced; 50 Ohms (drives >600 ohm inputs); 0 dBu nominal output
- Input - FROM AEC:** Balanced; 10k Ohms; 0 dBu nominal input
- Input - FROM REMOTE:** Balanced; >10k Ohms, +4 dBu (adjustable to -20 dBu), 18 dB headroom
- Output - TO REMOTE:** Balanced; 50 Ohms (drives >600 Ohm inputs); +4 dBu nominal (adjustable to -20 dBu), 18 dB headroom
- Hybrid type:** Hybrid coil with automatic adapting DSP echo cancellation
- LEC:** Echo cancellation 40 dB, total 60 dB; convergence 30 dB/second, cancellation span 30 ms
- Noise cancellation:** 6 dB or 10 dB, selectable; cancels steady-state ambient noise at all frequencies without affecting speech
- Logic:** Normally open contact closure inputs; normally low status outputs; up to 10 mA high level drive at 3 V
- Compliance:** The EF200 complies with FCC part 15, FCC Part 68, and CE requirements.

Technical specifications are subject to change without notice.



ASPI Digital - 1720 Peachtree St NW, Suite 220 - Atlanta, GA 30309
 800.932.2774 - +1 404.892.3200 - +1 404.892.2512 fax - www.aspi.com
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