

INFRARED CLOSED CAPTION SYSTEM

The USL Closed Captioning System (CCS) is designed to enhance the hearing impaired cinema patron's movie-going experience. A single infrared emitter broadcasts closed caption text and two channels of audio into an auditorium. Channel one is for hearing impaired (HI) and Channel two is for visual impaired narrative (VI-N). The use of IR instead of radio frequency transmission eliminates interference between adjacent auditoriums.

Two types of private display units are available: The "Seat Mount" display that clips to the arm rest and an "Eyewear/glasses" display. Each unit contains custom optics which display the caption as a virtual image far enough from the viewer to avoid the need to refocus between the caption and the movie screen.



Coming Soon!

The 2010 Featured
Eyewear Unit

Simple Installation - Plug in power, audio, and Ethernet from server

Integrated System - Single IR emitter carries both HI & VI-N audio and closed caption text

Users may select one of up to three caption languages delivered with the movie

No Interference - Use of infrared transmission eliminates interference from adjacent auditoriums or radio transmitters

Long-life rechargeable battery supports more than 10 hours of continuous operation

The CCS complies with DCI & SMPTE draft standards and operates with any compliant digital cinema server

USL provides a variety of methods to satisfy digital cinema closed captioning requirements. Each solution is based upon SMPTE draft standards for communication of closed caption data between the digital cinema server and other devices. USL is working with most manufacturers of digital cinema servers to insure interoperability.

Supported Display Technologies

USL supports transmission of closed captions to cinema patrons over IR (already used to carry HI and VI-N audio), Wi-Fi®, and Rear Window®. The decision as to which transmission system to use will depend upon any existing installed equipment, cost, and ease of use.

Infrared Transmission

IR is commonly used to transmit HI and VI-N audio in cinema auditoriums. Its simplicity and lack of interference between adjacent auditoriums make it superior to other systems. The USL IRC-28C IR emitter panel transmits HI and VI-N audio along with closed caption data. The IRC-28C includes an Ethernet connector to connect to the digital cinema server network. The IRC-28C automatically acquires caption data for up to three languages and synchronizes the caption data with the movie playback. No additional equipment is required for caption transmission. IR caption data can be received with the USL CCR-100 Seatmount Receiver and the CCH-100 Headmount Receiver.

The CCR-100 provides the patron with a private display that is attached by a gooseneck mount to the seat arm. The display is positioned to display closed caption text just below the movie image, similar to “burned in” subtitles.

The CCH-100 receiver is a set of glasses that includes an IR receiver. The closed caption text is projected in to the eye. As with the seat mount display, the user adjusts the CCH-100 so the text appears just below the movie screen, again making the captions appear similar to subtitles. With both receivers, the optics make the captions appear as a distant “virtual image” minimizing eye strain due to refocusing between the text and the movie image.

As an alternative to the use of the IRC-28C IR emitter panel, which includes the captioning module, an IRC-28 may be used with the CCE-100 rack mount caption encoder. The CCE-100 communicates with the digital cinema server, getting the caption data and synchronizing it with the movie. The caption data (up to three languages) is then transported to the IRC-28 over coaxial cable.

Wi-Fi® Transmission

As an option, the CCE-100 rack mount caption encoder may include a Wi-Fi® module. When this module is included, a Wi-Fi® antenna pointing in to the auditorium is connected to the antenna connector on the CCE-100. As with other configurations, the CCE-100 communicates with the digital cinema server over Ethernet, getting caption data and synchronizing it with the movie. Patrons may use any Wi-Fi® device that includes a web browser (such as the Apple iPod Touch® or iPhone®). The user connects to the Wi-Fi® signal for that auditorium, selects the desired display language (one of three), then views the captions for the movie playing in that auditorium. The Wi-Fi® module in the CCE-100 is not connected to the theater network, so security concerns are minimized.

Rear Window®

Theaters choosing to use the Rear Window® display (perhaps already installed) can plug the Rear Window® display in to the CCE-100 rack mount caption encoder. The CCE-100 gets captions and synchronization signals from the digital cinema server and sends captions to the Rear Window® display at the appropriate time.

IR Upgrade Notes

Theaters that are already using the IRC-23 (2.3MHz, 2.8MHz) IR panel can continue to use existing headphones, but the panel will need to be replaced with the IRC-28 or IRC-28C to handle caption data. The IRC-23 was designed before closed captioning was on the horizon, so it only supports the two audio channels.

Theaters that are using the IRC-21 (95kHz) IR panel can continue to use existing headphones and the IR panel. An IRC-28 or IRC-28C will have to be added to the auditorium to transmit caption data. It is suggested that HI audio be sent to both the IRC-21 and the IRC-28(C). The IRC-28(C) would also transmit VI-N audio and caption data. As headphones are replaced, they should be replaced with IRH-230 (2.3MHz, 2.8MHz) headphones to slowly migrate the system to the new frequencies. Use of the new frequencies allows two audio channels (HI and VI-N). Once the migration is complete, the 95kHz emitter can be removed.