

Universal Voice Channel Card for TMS-3000 Systems

Introduction to UVC-Plus

The standards-based Universal Voice Channel card (UVC-Plus) is a single-channel voice module that provides full-duplex voice communication capabilities and eliminates the need for external signal conversion equipment. UVC-Plus employs an on-board microprocessor that provides voice encoding via the following software controlled protocols and data rates:

- Codebook Excited Linear Prediction (CELP) at 8Kbps
- Pulse Code Modulation (PCM) at 64Kbps
- Adaptive Differential Pulse Code Modulation (ADPCM) at 16, 24, and 32Kbps
- Embedded Echo Canceling

Major Features

- Supports PCM, ADPCM, CELP voice on a single card
- G.711 compliant PCM (64 Kbps)
- G.726 compliant ADPCM (16, 24, and 32 Kbps)
- G.729 compliant CELP (8 Kbps)
- Strap-able 600 or 900 Ohm impedance
- 2-wire FXS and FXO interfaces
- 2- or 4-wire E&M interfaces
- FXS Talk Battery, Ring Voltage Generator, and Dial Tone Generator
- FXS Ground Start and Loop Start
- FXO On-hook/ Off-hook Indication
- FXO load zones based on standard ISO Country Codes
- Supports software selectable voice encoding techniques, input and output levels.
- Compatible with TMS-3000, TMS Compact and MiniMux TDM systems.

Table 1: UVC-Plus Types

UVC-Plus Module Type	GDC Part No.
UVC-Plus (FSX, FXO, E&M)	036P265-013

FXS/FXO Options

UVC-Plus provides an FXS or FXO analog interface with digital technology that uses a dedicated Micro-controller for configuration, alarms and status information. UVC-Plus can be configured for FXS signaling (Ground or Loop Start) and FXO load zone (standard ISO country codes).

E&M Signaling Options

The E&M signaling subsystem provides supervisory pulse communications between local and remote telephone networks. With additional allocated bandwidth, the signaling data is transmitted over the same path as the voice data. The UVC-Plus can be configured to support seven types of E&M signaling: Type 1, Type 2, Type 2 Back-to-Back, Type 3, Type 4, Type 5, Type SSDC5A (U.K.)

Signal Level Options

UVC-Plus accepts nominal input levels of 16 dBm and 0 dBm which may be adjusted to compensate for cable losses or other irregularities.

UVC-Plus provides nominal output levels of 0 dBm and +7 dBm which may also be adjusted to achieve additional compensation. The output level adjustments have the same dBm range as the input level adjustments.

E-Lead and Voltage Polarity

E-Lead inversion and loss of power states are selected by jumpers on the UVC-Plus basecard. These options select the state (BUSY or IDLE) that the E-Lead reverts to when power is lost at the TMS-3000 node. Four options are available for E-lead operation following either a loss of synchronization or an out-of-service condition.

Integrated Echo Canceller

An echo can result from significant (40 ms or more) round-trip time delay between the two ends of a line, often caused by a long terrestrial line or a satellite link. This echo can interfere with normal voice conversation, but may be eliminated by enabling the Echo Canceller feature on UVC-Plus cards at both ends of the circuit. Echo Canceling is based on an adaptive digital filter design that attempts to model the impulse response of the analog path through the external hybrid circuitry. By passing speech from the far end of the line through this filter, the Echo Canceller is able to generate a synthetic echo which is subtracted from the actual echo, thereby cancelling the actual echo.

