



CEU-610 AM-FSK Command Encoder Unit

Digitally Synthesized. AM-FSK out.

Front Panel LCD. Provides operational status and a configuration menu for the following parameters:

Amplitude	Bit-Rate
Modulation Factor	Cmd. Port Select.
Preamble Tone	Preamble Length
Idle Tone	Min. Idle Duration
LCD Contrast	Audio Loudness
Loopback Mode	Encryptor Initialize

Configuration Parameters. Stored in non-volatile memory.

Embedded Microcontrollers. Utilize two Motorola MC68HC11's.

Silver Engineering, Inc.'s

Command Encoder Unit Model CEU-610 is designed to generate analog SGLS compatible command tones as well as digital tone data. The CEU-610 can also receive digital tone data for loopback purposes and command verification. For encryption of commands or decryption of loopback commands, the CEU-610 can interface to a KIT-223 or KIT-223A encryptor/decryptor.

Interfaces The CEU-610 interfaces to a command computer, an exciter/modulator receiving SGLS compatible command tones, and a KIT-223 or KIT-223A encryptor/decryptor. The CEU-610 receives uplink commands and control from the command computer via an asynchronous RS-232 port. The CEU-610 is compatible with the KIT-223 / KIT-223A via an RS-232 remote interface for encryption/decryption of uplink data and control/status. The CEU-610 outputs SGLS compatible data (either encrypted or clear text) as AM/FSK tones suitable for input to an exciter.

The CEU-610 contains both an *encoder* and *decoder* function:

Encoder The encoder interfaces with the command ports and the encryptor RS-232 interfaces. The encoder inputs commands from the active command port (port 1 or 2), verifies the validity of the commands, and buffers them in a 16K Byte queue. Commands that are tagged for encryption are transmitted to the encryptor, and the received text (cipher or bypass) is output for transmission. Non-encrypted commands are output directly from the queue. In addition, the encoder interprets directives, which are non-transmit type commands used for configuring the unit.

Decoder The decoder interfaces with the tone data input and the loopback RS-232 port. The decoder inputs tone data from either an external or internal input, packets the tones, and outputs them via the loopback RS-232 interface. The decoder can operate in the loopback mode and/or enhanced loopback mode as to be described.

Loopback In the loopback mode, input data is transmitted to an optional external computer for viewing. The source of transmission can be an internal source or a multitude of external sources (via the external inputs). Digital tone data (0, 1, & S) is packeted as four tones (0,1,S,N) per byte, and then is output to a computer via the loopback port.

Enhanced Loopback The enhanced loopback operation is similar to the loopback mode except that the received data is transmitted back to the encoder instead of being output to the optional external computer. The decoder parses the received data and passes the parsed data to the encoder. The encoder decrypts the data, if required, and transmits the data to the command computer.

Installation The Model CEU-610 is a two rack unit (3.50-inch) high chassis designed for installation in 19-inch racks.



Model CEU-610 Specifications

Command Ports (J1, J2);

- Two RS-232 ports for input command packets (9600 Baud).
- Accepts 20, 32, or 48-bit clear (non-encrypted) commands.
- Accepts encryptor 63-bit bypass and crypto commands.
- Provides 16K Bytes of command buffering.

AM/FSK 1 & AM/FSK 2 Ports (J14, J15);

- Dual 50-Ohm AM-FSK modulated output formats are suitable for an exciter/modulator.
- Outputs SGLS compatible tones that are AM modulated by a 500 Hz triangular waveform:

<i>Data Bit Rate</i>	1000 bps
<i>Tone Frequency S</i>	65KHz ±0.01%
<i>Tone Frequency 0</i>	76KHz ±0.01%
<i>Tone Frequency 1</i>	95KHz ±0.01%

- Adjustable Bit Rate from 990 to 1010 bps in 1 bps steps.
- AM-FSK output amplitude is adjustable from 0.5 to 3.0 volts peak-to-peak into a 50-Ohm load.
- Adjustable modulation factor from 0.45 to 0.55.
- Programmable idle tone and minimum idle tones between commands.

KIT-223 Encryptor Port (J13);

- Interfaces to KIT-223 and KIT-223A encryptor units for processing of 63-bit commands.

Test Outputs (J8 thru J12);

- Provides additional 50-Ohm SGLS tone outputs identical in content to the AM-FSK output.

Loopback & Test Input Ports (J3 thru J7);

- Loopback feature accepts 50 Ohm digital tone inputs (0,1,S), and outputs tone data to an RS-232 Loopback port (9600 Baud) for transmission verification.
- Loopback verification option permits loopback data to be decrypted and the received data pattern to be sent to the command port.

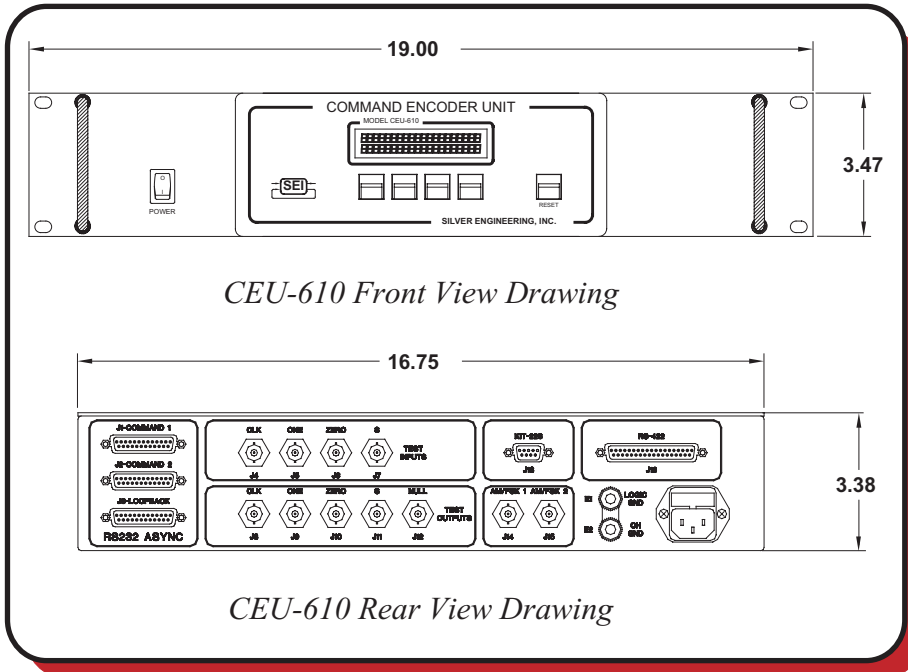
RS-422 Port (J16);

- Provides 120 Ohm differential SGLS tone outputs identical in content to the AM-FSK output.
- Accepts 120 Ohm differential tone inputs (0,1,S) for loopback feature.

Software provides built-in-test capability.

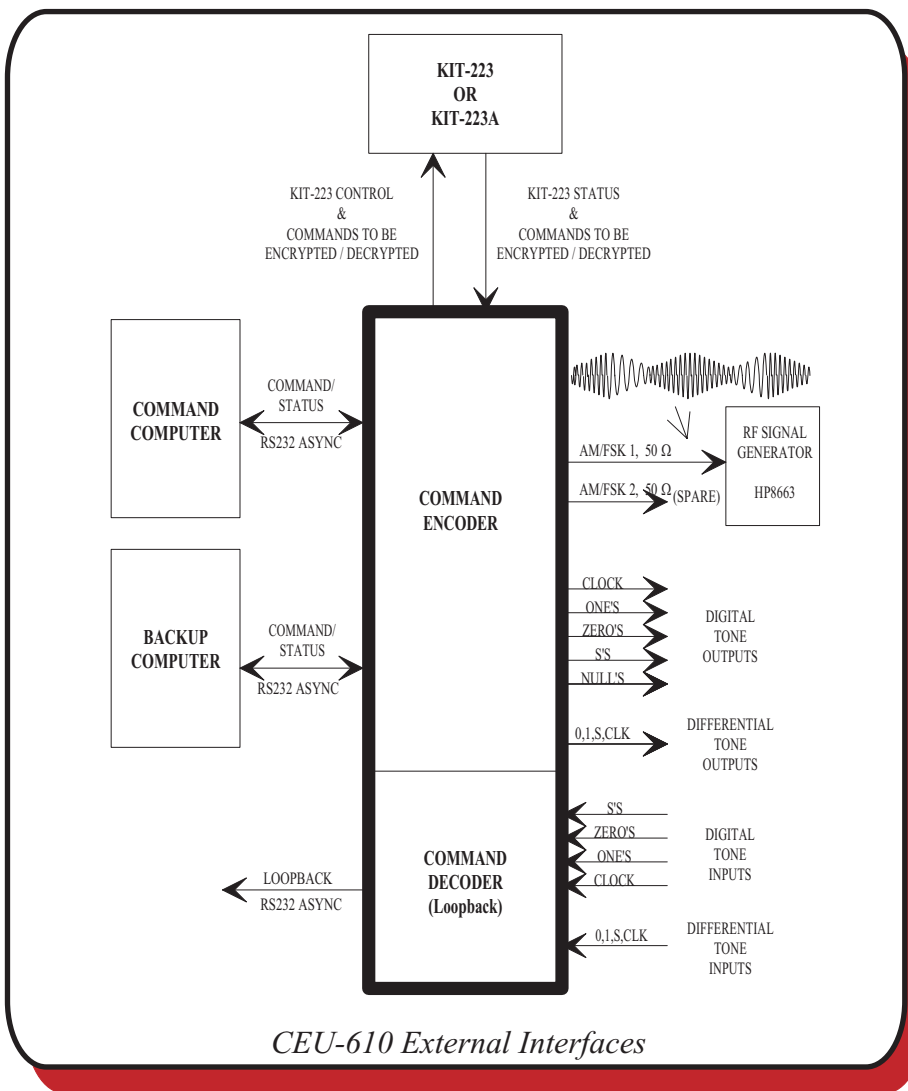
Enclosure;

- Size: 19-inch rack mount unit, 3.50-inches high.
- Weight: 10 lbs.



CEU-610 Front View Drawing

CEU-610 Rear View Drawing



CEU-610 External Interfaces

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