C Plus I
Multi Format ANI Decoder/Encoder

Compatible With:

MDC-1200®
GE-STAR®
FleetSync™
DTMF

BENEFITS:
- Identify every transmission source
- Reduce nuisance and obscene transmissions
- DSP signal processing decodes extremely weak, distorted or noisy signals
- Instantly identify an Emergency or ManDown transmission
- AGC for hassle free installation

FEATURES:
- Dual or Triple ANI formats decoded in the same unit
- Auto Emergency Acknowledgement (all formats)
- 2 Mb Flash Memory
- Field Upgradable
- "Ambush" function automatically responds when "missing" units become active
- "Authorize" function controls repeater access
- "Enunciate" function sounds unique tones for user defined ID's
- Time and Date Stamped Data
- DTMF - 8 Characters with Status at Beginning or End
- Data Mute Relay
- Sounder - with programmable tones
- Full Duplex Operation
- Linkable with other units for Multi-Channel operation
- Diagnostic LED's and built in ATE functions
- Decode FleetSync "Group ID's"

OPTIONS:
- Aliasing - Greater than 4000 ID's, each with 27 characters
- Encoding MDC-1200, FleetSync, or GE-STAR 2-way commands
- Dual Decode (any two formats)
- Triple Decode (any three formats)
- Tone Remote Interface (wire line)
- Factory setup and configuration
- 19" Rack Mount Kit

ID-Aliasing
The C Plus I includes 2 Mb of flash memory. The memory allows the user to program a look-up table of alpha characters. When the ANI number is received, it is converted to 8 alpha numeric characters. For example: ID 1234 could output "John #99". A full character set is available with upper and lower case, symbols, and digits. Greater than 4000 ID's may be stored.

The **C Plus I** ANI computer interface unit is a compact, economical means to convert and forward ANI, Emergency, and Man-Down messages to a users computer. The **C Plus I** has a built in encoder providing automatic EM acknowledgements. The acknowledgement eliminates repeat Emergency transmissions.

Inbound MDC-1200, GE-STAR, or FleetSync data bursts are decoded, immediately reformatted to serial ASCII and forwarded to the user's computer or console.

Up to 8 DTMF Characters may be displayed. The user may define the 1st or last character to be a status. Status characters can be programmed to trigger an audible alarm and or Out 1 or Out 2.

An RS-232 port outputs the ID, the message type, and channel number. The channel number is programmed by the user.

During the reception of ANI data, a form C relay becomes active. The relay may be wired back through the receiving radio or dispatch console in order to mute the data burst. Several modes of Mute operation are available.

With the optional encode function, the **C Plus I** encodes MDC-1200, FleetSync, and GE-STAR 2-way messages. Select Call, Radio Check, and Call Alert are available for MDC-1200. Select Call, Radio Kill, and Interrogate are among the functions available for GE-STAR and FleetSync. All 2-way functions are fully compatible with factory built-in signaling features available from the major radio manufacturers.

Two open collector outputs are provided which are user programmable. The outputs may be used to drive external alarms and indicators during Emergency and Man-Down situations.

The user has complete control of the output ASCII format. All typical ASCII parameters such as baud rate may be set as required.

CIMARRON
TECHNOLOGIES

C Plus I
SPECIFICATIONS

Electrical

- SIGNALING FORMATS
  - GE-STAR® - PSK 400 bps on 1600Hz +/- 1.5% carrier
  - MDC-1200® - FSK 1200 bps at 1200/1800 Hz
  - FleetSync™- MSK 1200 bps at 1200/1800 Hz
  - NYSP GE-STAR - format containing special bit values
  - DTMF - Up to 8 Characters

- POWER REQUIREMENT
  5 VDC +/- 5% at 1.0 A. External 120 VAC power supply included. High efficiency, Green Power approved. 90 - 264VAC input with overvoltage protection.

- RADIO SYSTEMS
  Conventional or Trunking compatible.

- DATA INPUT (for Decoding)
  Single ended: 30mV to 12Vpp, Balanced: 600ohm -30 to +10dBm. High Z: -36 to +4dBm. No adjustment necessary due to AGC.

- DATA OUTPUT (for Encoding)
  Single ended: 600 ohm: to 14Vpp, Balanced: 600 ohm to +10dBm; High Z to +16 dBm. Potentiometer adjustible to allow radio transmit deviation setting.

- SOUNDER
  Audible 3400 Hz 80dB(A) @ 2', programmable tones.

- DIAGNOSTIC LED's
  - MUTE - Active within 20mS of a valid decode
  - DECODE - Active during a valid decode
  - Tx I/O Active - Active when transmitting serial data
  - Rx I/O Active - Active when receiving serial data
  - Tx Busy - Indicates radio transmitter is active
  - KEY - Indicates the KEY relay is active
  - ENCODE - Indicates data is being encoded
  - IR DISABLED - Indicates status of IR port
  - ERROR - Indicates an error state
  - POWER - Indicates power status of unit

- PRINTER OUTPUT
  A serial port outputs RS-232 ASCII, identifying each decoded message. The printer output is programmable and can include the unit ID, message type (8 characters), plus time, date, and channel number. If Alias option is installed, printer will also print the aliased ID, message, and assignment (27 total characters).

- MDC-1200
  Decodes entire HEX ID set. Emergency and Mandown will be acknowledged. With Encode option installed, supports Voice Select Call, Radio Check, Call Alert (long), Call Alert (short).

- GE-STAR
  Decodes and all known variations. Emergency and Mandown will be acknowledged. With Encode option, supports Selective Call/Cancel, Radio Disable/Enable, Mic Monitor, and Interrogate.

- FleetSync
  Decodes FleetSync Basic and FleetSync Ver 2.0, PTT ANI, Emergency (ST99) and ManDown (ST98). Emergency and Mandown will be acknowledged. Entire set of Fleet and Unit ID's. Fleet range 100 to 349. ID range 1000 to 4999. With Encode option, supports Selective Call/Cancel, Radio Disable/Enable, Mic Monitor, Interrogate, and Status Messages.

- DTMF

Allowed Characters	0 through 9, A, B, C, D, * or E, # or F
Maximum Length	8 characters or 7 plus status
Twist Acceptance	-8 to +4 dB
Noise Tolerance	-12dB
Frequency Tolerance	2.5% of DTMF Frequency
Min. digit length	programmable 25mS to 5000mS
Max. inter-digit pause	programmable 50mS to 9999mS
Status Reporting	If enabled, first or last received character refers to status
ID Qualifying	If enabled, maximum of 5 character prefix qualifies decode

PROGRAMMABLE FUNCTIONS

- AMBUSH
  Cimarron's "Ambush" feature permits the user to set the *C Plus* to transmit a Radio Kill or Select Call as an ambush for a turned off or out-of-range radio.. When the target radio returns to range and transmits his ID, the *C Plus* responds by sending the command.

- AUTHORIZE
  Cimarron's "Authorize" feature permits the user to program a list of authorized ID's. The *C Plus* will then respond only to those ID's. The auxillary outputs can be connected to drive SMR or repeater control circuits.imarron's "

- ENUNCIATE
  Cimarron's "Enunciate" feature allows the user to program unique tones to be sounded when specific ID's are decoded.

- AUXILIARY OUTPUTS
  2 open collector outputs will each sink 500mA. Active for 2 seconds. Programmable for Emergency, Man-Down, Stuck Mic, Authorize, Ambush, or other user defined functions.

- OUTPUT FORMATS
  Select: Cimarron ANI, MCC, Modat, 1207/BED-31, CML, NYSP, GENERIC 21 BIT.

- DECODER OPERATION
  Select: Chan #, Base ID, Time, Date, Printer baud rate, Printer on/off, Sounder tones.

- ENCODER OPERATION (included)
  Select: On/Off acknowledgements to EMER messages, Attack Delay Time, Preamble Length (GE-STAR only)

- ENCODER OPERATION (optional)
  Select: MDC-1200, FleetSync, or GE-STAR 2-way functions. Requires connection external terminal or CAD system to enter the 2-way commands.

- DIAGNOSTICS
  Select: Loop Back, Data Modulation, Outputs toggle.

INTERFACES

- KEYING OUTPUT
  Open collector output capable of sinking up to 500mA.

- DATA MUTE RELAY OUTPUT
  Form C Relay, 1.0A at 24VDC (N.O. and N.C. contacts). Mode 1: Active during ANI burst. Mode 2: Un-mutes only after data burst reception and active COS.

- RS-232 SERIAL
  RJ-11 (6 pin modular phone type) connector. Used to output data decodes for connection to CAD or serial printers. Also capable of accepting 2-way encode/decode commands.

OPTIONS - (options are field upgradable)

- ALAISING - 4000 ID's. 27 total via serial ports.
- Encoding - compatible with MDC-1200,FleetSync, and GE_STAR
- Dual Decode (any two formats)
- Triple Decode (any three formats)
- TONE REMOTE - 125 mS tone burst of 2175 Hz followed by function tone. Tone programmable from 950 to 2050 Hz in 100 Hz steps.
- 19" rack mounting kit

MECHANICAL

- REAR CONNECTOR
  Two screw terminal strips. Each separately un-pluggable from unit.

- SIZE
  8" x 6 1/4" x 3" (20 x 16 x 7.6 cm), less extended front legs.

- WEIGHT
  1 lbs. 7.4 oz. (3.2kg) including external power supply.