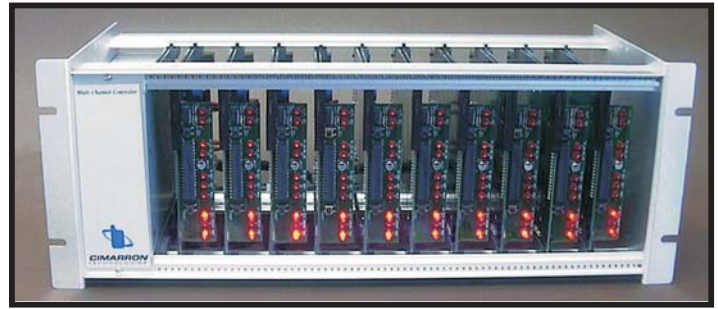


MCC

Multi-Channel Controller

Compatible With:

MDC-1200[®]
GE-STAR[®]
FleetSync[™]
DTMF



Front View (front cover removed)

BENEFITS:

- Decode ANI data from multiple sources
- Decode MDC-1200, FleetSync, GE-STAR, and DTMF
- Connects to VHF, UHF, Trunked, or Conventional
- Allows for mixed format situations
- DSP signal processing decodes extremely weak, distorted or noisy signals
- AGC compensates for input signal variations

FEATURES:

- 19" Rack configuration
- 10 channel cards per rack
- Dual or Triple ANI formats decoded in the same card
- Each channel card separately configurable, ID tagged
- 2 Mb Flash Memory for Field Upgrades
- Expandable to 127 channels
- Real Time Clock for time and date stamped data
- DTMF - 8 Characters with Status at Beginning or End
- Automatic Emergency Acknowledgement
- * IR, * USB, and Serial Interface Ports
- Data Mute Relay
- Full Duplex Operation
- Diagnostic LED's visible from the front panel
- Sounder on each channel card
- "Ambush" allows automatic Radio Kill or Select Calls
- "Authorize" allows only selected ID's to be decoded
- "Enunciate" for unique alert tones to be sounded

OPTIONS:

- Aliasing - Greater than 4000 ID's, each with 27 characters
- Encodes MDC-1200, FleetSync, or GE-STAR 2-Way commands
- Tone Remote Interface (wire line)
- Dual format operation (any two ANI formats)
- Triple format operation (any three ANI formats)
- Factory setup and configuration

ID-Aliasing

Each MCC channel card 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 up to 27 alpha numeric characters for output. For example: ID 1234 could display "John #99". A full character set is available with upper and lower case, symbols, and digits. Greater than 4000 ID's may be stored in each card.

The **MCC** is a multi format encoder/decoder which allows many different radio channels to be multiplexed into a single point. The MCC contains individual channel cards inserted into a 19" rack. Each rack can contain from 1 to 10 channel cards. Racks may be added as needed to accommodate up to 127 channels.

Each rack contains a regulated power supply to handle from 1 to 10 cards.

Each channel card may be programmed for any ANI format. In addition, each card may be programmed for operation on a Conventional or Trunked radio system. The output format of each card is also separately programmable. ANI output formats are non-proprietary and compatible with many dispatch console manufacturers.

The Dual or Triple format option is available for each channel card. This option allows each card to decode/encode up to 3 different ANI formats automatically.

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.

The **MCC** allows 2-way ANI data operation. Each card has full duplex, encoding and decoding capabilities for Acknowledgement, Select Call, Radio Kill and other format dependent commands.

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 from each channel. Several modes of Mute operation are available.

The MCC communicates with the dispatch console via an RS-232 Serial Multiplexer or USB hub (sold separately).

The **MCC** includes "Ambush", "Authorize" and "Enunciate" and are described on the following page.

The 19" rack includes a black translucent front dust cover.



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Multi-Channel Controller

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
 - DTMF - Up to 8 Characters
 - NYSP GE-STAR - format containing special bit values
- **POWER REQUIREMENT:** 120/220 VAC. Aprox 5 watts/channel card.
- **RADIO SYSTEMS:** VHF, UHF, 800/900 mhz, Conventional or Trunking compatible.
- **DATA INPUT (for Decoding):** Single ended: 30mV to 12Vpp, Balanced: 600ohm - 13 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 +16dBm. Potentiometer adjustable to allow radio transmit deviation setting.

OUTPUT FORMATS

- **EACH CHANNEL:** Cimarron MCC ANI, Cimarron Standard, Cimarron Translated, MODAT, 1207/BED-31, CML, NYSP, GENERIC 21
 - Examples:

00000300	EMERGENCY	11:06:30	03/20/02	CH 01
SUPRVSOR	ANI ID	11:07:02	03/21/02	CH 07
123-4567	ANI ID	11:08:58	03/22/02	CH 05
- **CONSOLE INTERFACE:** via RS-232 Serial Multiplexer or USB hub (not included, sold separately)
- **CONSOLE COMPATIBILITY:** Contact factory for a list of compatible dispatch console manufacturers.
- **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 all known variations. Emergency and Mandown will be acknowledged. With Encode option, supports Selective Call/Cancel, Radio Disable/Enable, Open Mic Monitor, and Interrogate.
- **FleetSync:** Decodes and displays 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

"Ambush"

* Cimarron's "Ambush" feature permits the user to set the channel card 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 radio range and transmits ANI ID, the channel card responds by sending a Radio Kill.

"Authorize"

* Cimarron's "Authorize" feature permits the user to program a list of authorized ID's. Each channel card will then respond to only those ID's. The auxiliary outputs can be connected to drive SMR or repeater control circuits.

"Enunciate"

Cimarron's "Enunciate" feature allows the user to program unique tones to be sounded when specific ID's are decoded by a channel card.



Rear View

PROGRAMMABLE FUNCTIONS

- **AUXILIARY OUTPUTS:** 2 open collector outputs programmable for Emer, Man-Down, or other user defined functions.
- **CHANNEL TAG:** 2 digits, 1 through 99. Hex tag range to FF allows for up to 127 channels.
- **OUTPUT FORMATS:** Select: Cimarron MCC ANI, Cimarron Standard, Cimarron Translated, MODAT, 1207/BED-31, CML, NYSP, GENERIC 21.
- **DECODER OPERATION:** Select: Chan #, Base ID, Time, Date, Printer baud rate, Printer on/off, Beeper 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, and GE-STAR 2-way functions.
- **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.
- **Radio Interface Connector:** Two screw terminal strips. Each separately unpluggable from channel card.

OPTIONS - (options are field upgradable)

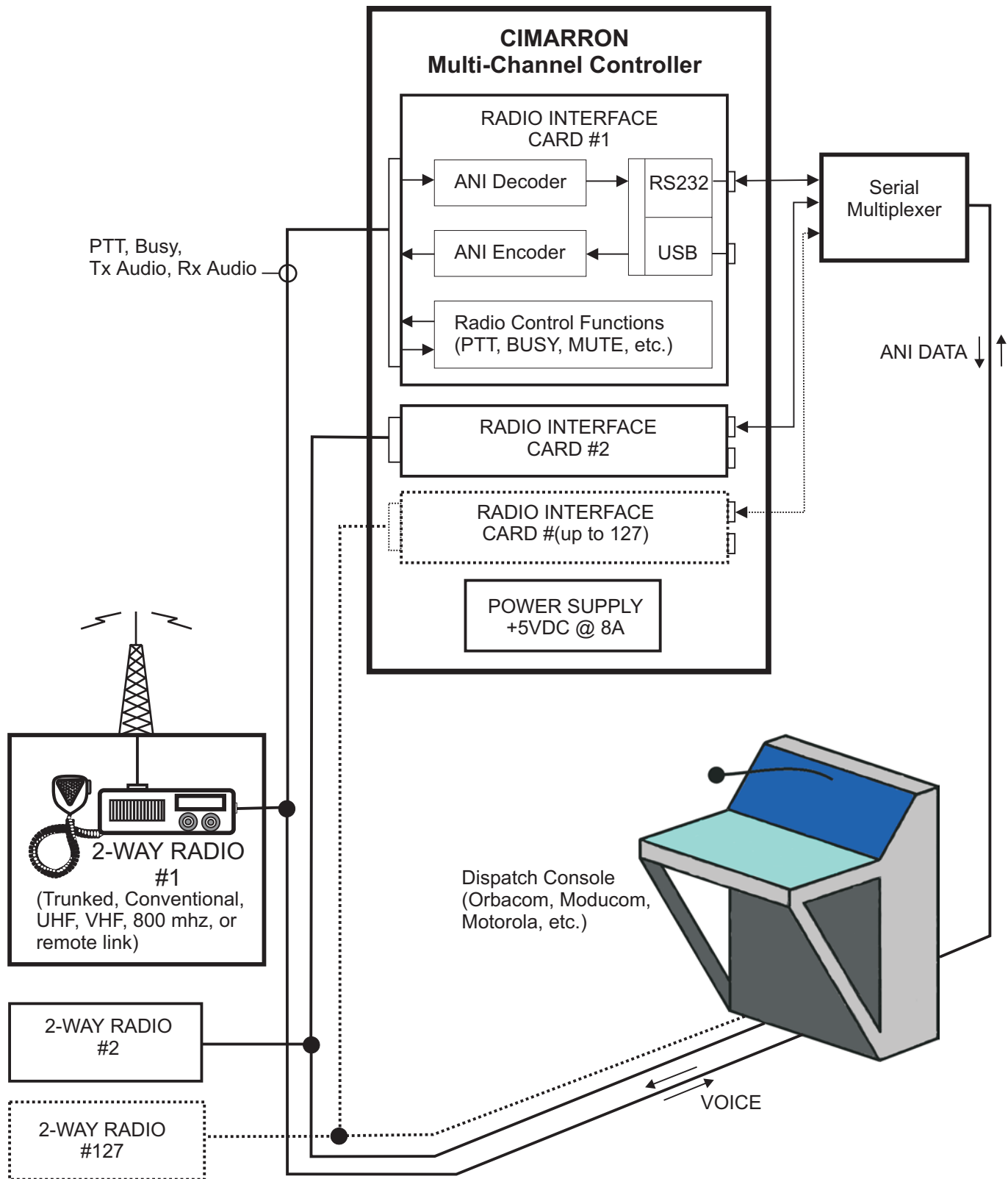
- Aliasing (per channel) - 4000 ID's. 27 characters via serial ports.
- Encoder Option - for 2-Way MDC-1200, FleetSync, or GE-STAR
- Dual Decode (any two formats)
- Triple Decode (any three formats)
- TONE REMOTE - 125 mS tone burst of 2175 Hz followed by function tone. Tone programmable from 950 to 2050 Hz in 100 Hz steps.

MECHANICAL

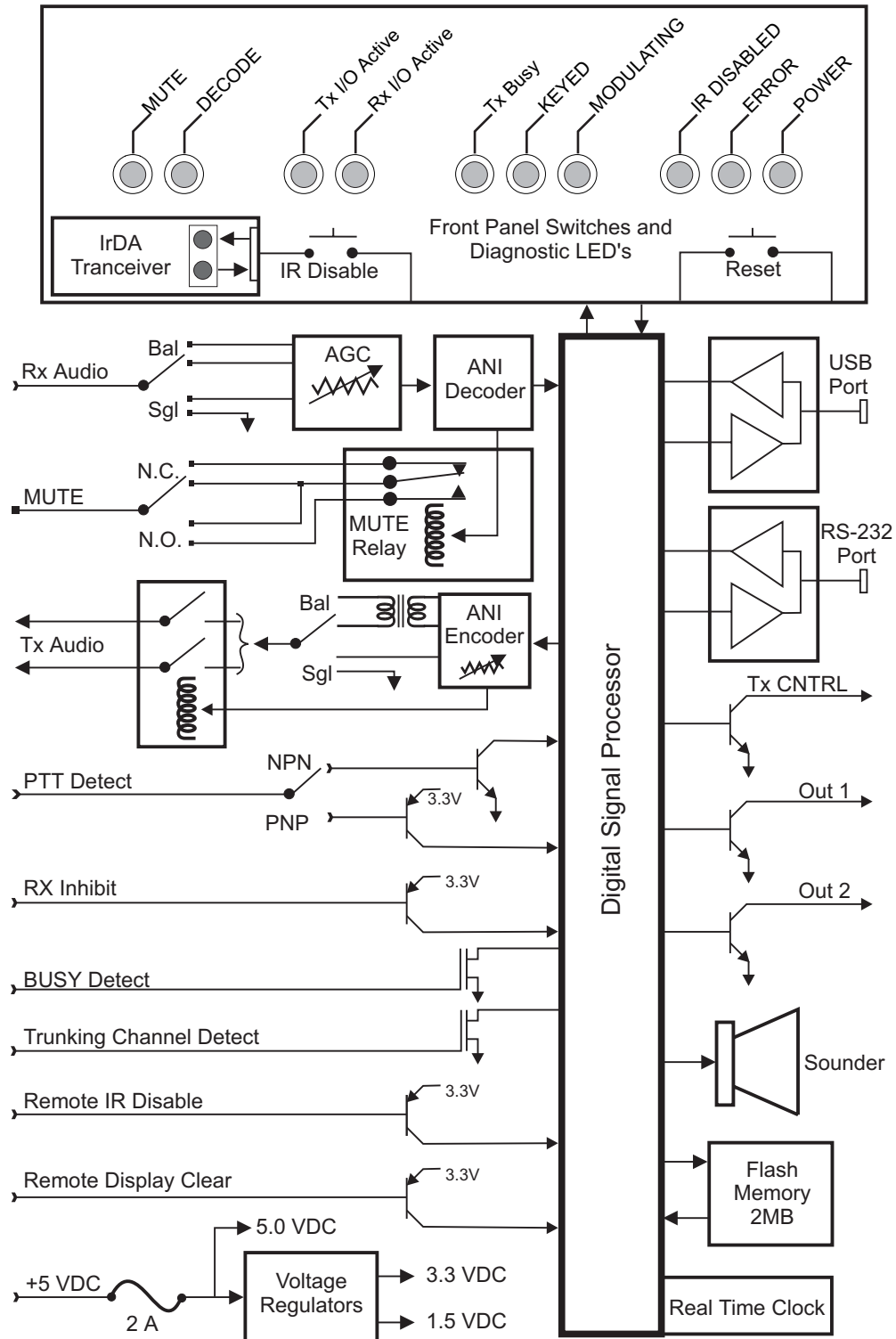
- **SIZE:** 19" x 7" x 9" (length, width, depth)
- **WEIGHT:** 9.2 lbs. (fully loaded)

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 GE-STAR is a registered trademark of GE Ericsson
 FleetSync is a trademark of Kenwood Communications Corporation

Multi-Channel Controller Block Diagram of Typical Application



Multi-Channel Controller Functional Block Diagram - each channel card



Note: Some jumpers, base resistors, and pull up resistors have been removed for clarity. Please consult schematic for actual circuits.