

# MARTI

## RMC-20 DIGITAL REMOTE CONTROL

### General Description

The Marti RMC-20 Digital Remote Control, Telemetry and STATUS\*/LIMIT ALARM system provides the ULTIMATE IN ACCURACY, SIMPLICITY, AND SPEED OF OPERATION. Channel selection is accomplished simply by pressing a SINGLE button. The data for the selected channel is then read from the large digital panel display. Raise/Lower commands can be given for the selected channel by pressing the Raise or Lower button.

Advanced digital concepts are applied throughout the system to achieve the greatest accuracy and reliability. CHANNEL SELECTION AND COMMANDS ARE SWITCHED WITH HIGH CURRENT 220 VOLT AC RATED RELAYS, which greatly reduces the time and material necessary in remote control installations.

This system is the most technically advanced on the market, yet is the EASIEST AND SIMPLEST TO INSTALL AND MAINTAIN. BOTH LOCAL CONTROL AND REMOTE UNITS HAVE BUILT-IN TEST METERS for checking all power supplies and communications signal levels. A test jack and switch is provided for checking the digital clock frequency, the FSK demodulator center frequency and the FSK modulator mark and space frequencies. The units are designed for easy access to all boards for maintenance. Extensive shielding and filtering of all inputs and outputs has been provided.

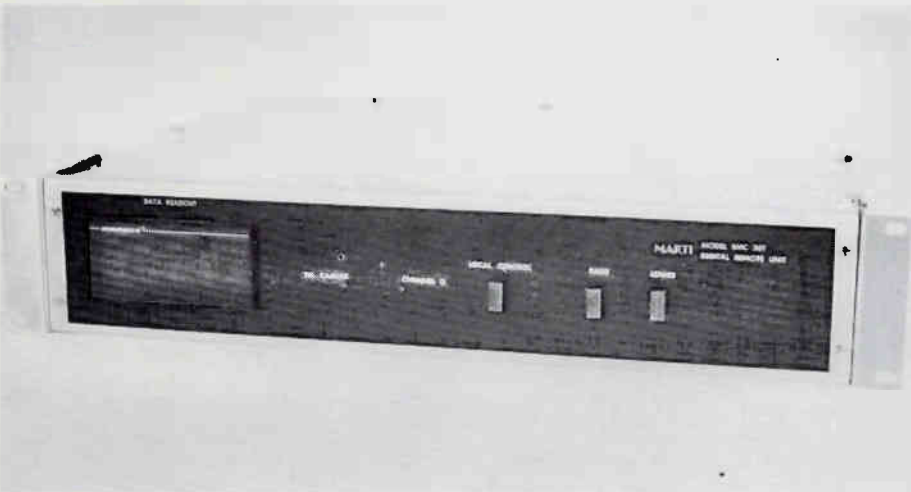
The system channel capacity can be 5, 10, 15 or 20 channels by plugging in one, two or three Marti R-5 Selector Units.

The extra features and unsurpassed value of the Marti RMC-20 system result from application of advanced MOS/LSI (metal oxide semiconductor/large scale integrated) circuit technology.

\*Optional

### Features: . . . .

- \* Single Button, Direct Digital Channel Select
- \* Exceeds All FCC Requirements for Accuracy of Antenna System Data
- \* Studio and Transmitter Units Phase Locked to Common Clock.
- \* Telemetry Accuracy 0.1%
- \* Basic 5-Channel System Expandable to 10, 15 or 20 Channels.
- \* Fully Digital for Radio Circuit or Wire-Line Operation
- \* Plug-in Modules for FSK Frequency Change
- \* Status/Tolerance Limit Alarm, Optional
- \* High Current relays provided for direct connection to 115 or 220 volt latching control circuits without other interface relays.



**MARTI** *Electronics, Inc.*

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# RMC-20 DIGITAL REMOTE CONTROL

## Specifications

**Type** . . . . . Single operation channel selection with fully digital control command and data telemetry using latest MOS/LSI Technology.

**Channel Capacity** . . . . .

5 Channel	10 Channel
10 Command	20 Command
5 Telemetry	10 Telemetry
15 Channel	20 Channel
30 Command	40 Command
15 Telemetry	20 Telemetry

**Command and Telemetry Frequencies** . . . . .

**Command**  
Wire Line - 2 KHz.  
STL - 22 KHz.

**Telemetry**  
Simplex Wire Line - 2 KHz.  
Duplex Wire Line 800 Hz. and 2 KHz.  
SCA - 2 KHz.  
SCA - 800 Hz.  
SCA - 25 Hz. Sub-Audible  
AM - 25 Hz. Sub-Audible

**Command Output** . . . . . Relay closure with all contacts isolated and floating. Contact ratings are 220 volts AC, 5 Amps.

**Telemetry Accuracy** . . . . . Data is transmitted digitally. Synchronized to a system crystal clock.

**Telemetry Update** . . . . . Command and data information is continuously updated. Proportional control is provided by observing the digital readout while commands are given.

**Telemetry Input Requirements** . . . . . 1 volt DC will produce full scale (999) display. Convenient scaling of data is provided by over-ranging the display (2 volts DC for 1999). Input resistance 50K ohms isolated and floating.

**Input/Output Impedances** . . . . . 600 ohms balanced and isolated. Also 5K unbalanced BNC input to RMC-20T transmitter unit.

**Fail-Safe Contacts** . . . . . Factory adjusted transmitter Fail-Safe delay. Adjusted to 40 seconds. Adjustable from 10 seconds to 90 seconds as required.

**Ambient Operating Temperature Range** . . . . . -10 to +70 deg. C.

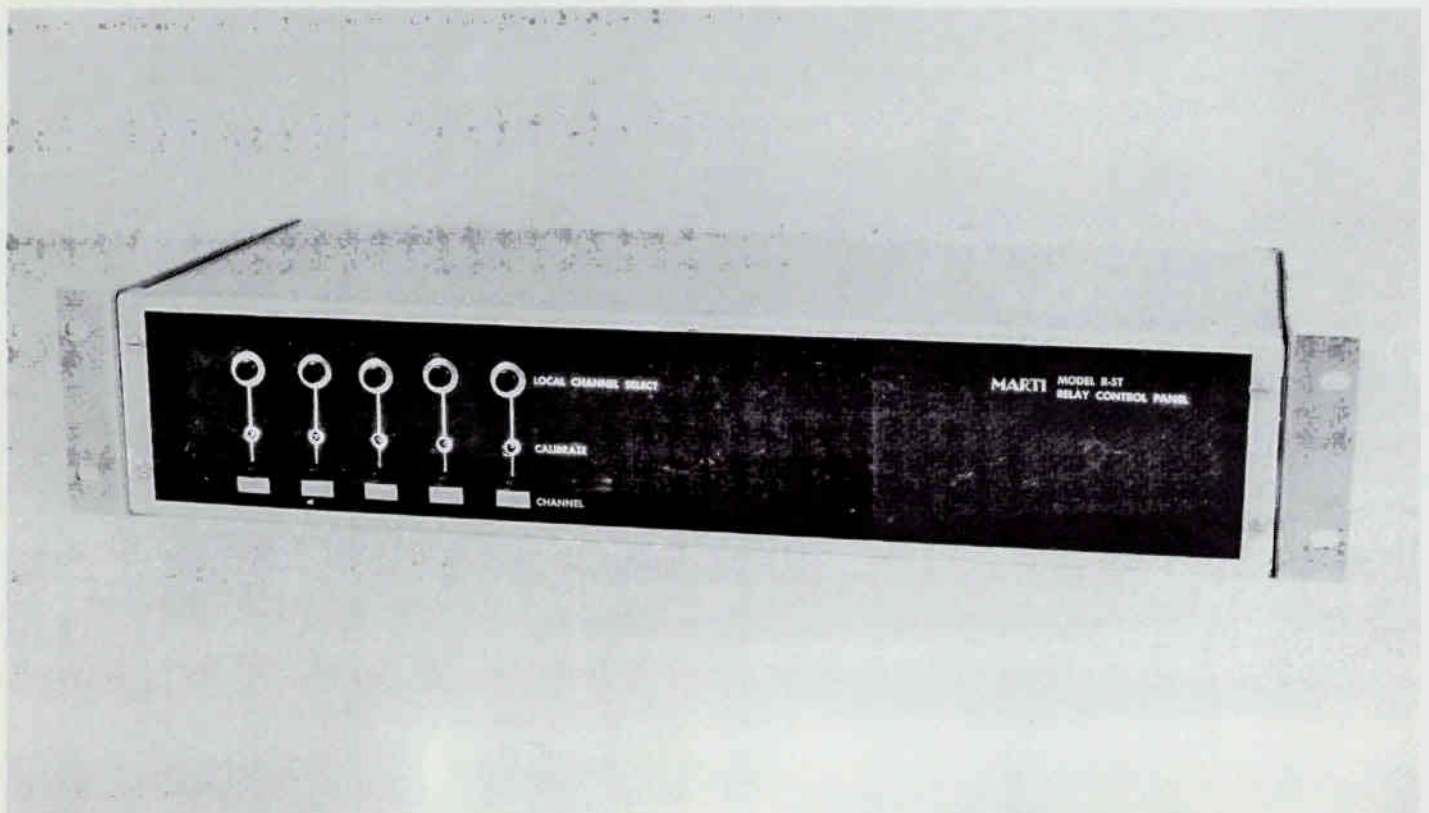
**Power Requirements** . . . . . 115/230 VAC, 50/60 Hz., single phase.

**Dimensions** . . . . .

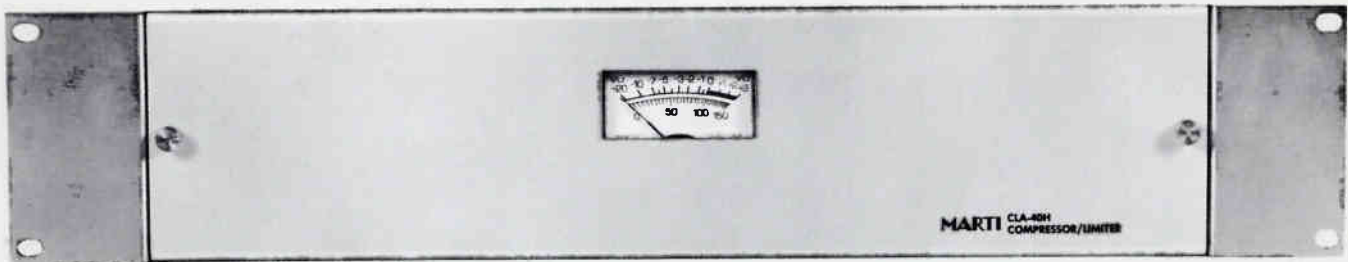
RMC-20S Studio Unit	3½" high x 19" wide x 14" deep
RMC-20T Transmitter Unit	3½" high x 19" wide x 14" deep
R-5T Channel Control Unit	3½" high x 19" wide x 6" deep

**Weight** . . . . .

RMC-20S Studio Unit	18 lbs.
RMC-20T Transmitter Unit	21 lbs.
R-5T Channel Control Unit	3½ lbs.



# CLA-40/A Compressor Limiter Amplifier



Horizontal Type Mounting

## FEATURES:

- ★ Symmetrical or Asymmetrical Peak Limiting — Switchable
- ★ Pre-emphasized or Flat Audio Response — AM or FM — Switchable
- ★ Compress/Limit, Compress Only, Compress/Limit Off — Switchable
- ★ Adjustable Negative and Positive Peaks
- ★ Well Shielded and Filtered for Strong RF Fields
- ★ Plug-In, Modular Construction
- ★ Illuminated, Taut-Band Meter reads Gain Reduction or Output Level in VU
- ★ 40 DB Dynamic Range with less than 1% Distortion
- ★ Automatic Gain Control Built In
- ★ Solid-State
- ★ Selectable Release

The CLA-40/A Compressor/Limiter, is perhaps the most versatile audio processing device to be found on the market today. Combining the functions of Limiting, Compression, Expansion and Automatic Gain Control, the CLA-40/A fills a variety of requirements, formally accomplished by several different devices. The mystery of audio processing has now been eliminated as this new amplifier does them all.

Compatible with either AM or FM broadcast application, it can be used in either mode of operation, simply by switch selection. For stereo application, two CLA-40/A Amplifiers are strapped together and checked out as a stereo device. The amplifier may be operated in either the symmetrical or asymmetrical limiting mode and when operating asymmetrically, it is not at all unusual to expect a 6 db. rise in average modulation. In the event of positive FCC action requiring that Positive Peak Modulation be limited to 100%, the unit

need only be switched to **Symmetrical limiting** to conform to FCC requirements.

Any type of program format is adequate handled by the CLA-40/A from "Middle of the Road" to "Hard Rock," with maximum Dynamic Range and minimum Distortion. With switch selectable release times of as high as 5 seconds, the unit also finds application as an Automatic Gain Control Amplifier and is ideal for use between the output of a Production Console and the input to the Record Amplifier of Cartridge Tape Systems.

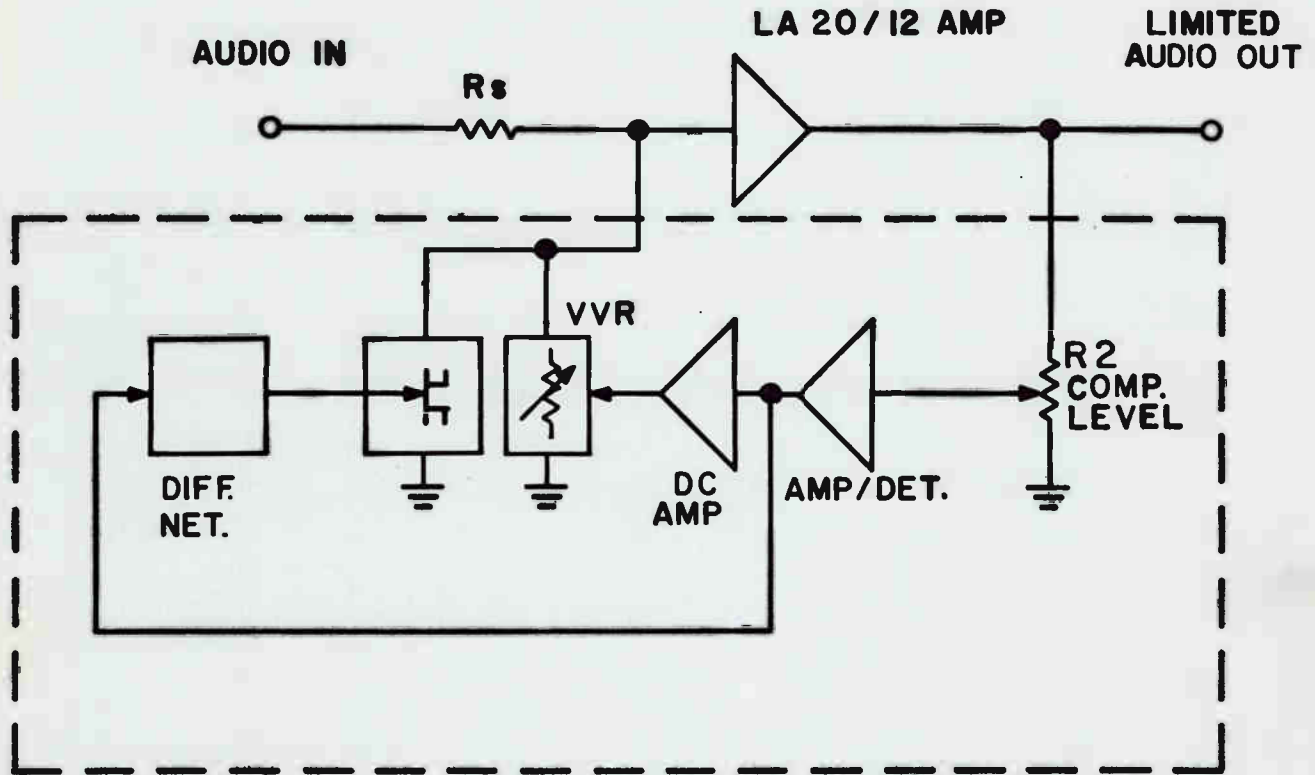
Fully accessible controls, permit its use as a Compressor, Compressor/Limiter or as a "Straight Through" amplifier for Proof of Performance measurements, and at last, the CLA-40/A is supplied with a meter that means something, reading in Gain Reduction, + 4 VU and + 10 VU.

Manufactured by a Broadcaster for the Broadcaster.

# THEORY OF OPERATION OF THE MARTI CA-40/A SOLID STATE COMPRESSOR/LIMITER MODULE

The Marti CA-40/A compressor/limiter unit operates on the variable audio attenuator principle. A full wave audio detector provides a voltage proportional to audio peak level which controls a voltage variable resistor (VVR) average level attenuator. This VVR device has a very large dynamic operating range, adds no audio distortion but has a comparatively slow attack time. For instantaneous control of short rise time audio wave-

forms, the control voltage is differentiated and applied to the gate of a field effect transistor. This device is connected in parallel with the VVR, and serves as an extremely fast attenuator, operating only on short rise time waveforms, thus complimenting the slower VVR device. The result is a compressor with a 40 db dynamic range and a limiter with microseconds attack time.



## SPECIFICATIONS

<b>Application</b> .....	AM or FM (Characteristics selectable). Strap two together for stereo. Combines both compression and limiting functions. Three control systems used. Symmetrical peak limiting for FM, selectable asymmetrical or symmetrical peak limiting for AM. Peak limiting level adjustable.
<b>Input and Output Impedances</b> .....	600 ohms balanced or unbalanced.
<b>Input Level</b> .....	-15 to +20 DBM.
<b>Maximum Output Level</b> .....	+20 DBM RMS.
<b>Frequency Response</b> .....	50 Hz. to 15 kHz flat within 0.5 DB in AM or FM mode.
<b>Maximum gain</b> .....	40 DB.
<b>Noise Level</b> .....	-66 DB Ref. +10 DBM output (FM Mode).
<b>Distortion</b> .....	Less than 1% THD at all compression levels.
<b>Compression Ratio</b> .....	Better than 10:1.
<b>Automatic Gain Control Range</b> .....	40 DB dynamic.
<b>Release Time</b> .....	Adjustable 800 milliseconds., 2 sec., 5 sec. approx.
<b>Attack Time</b> .....	Less than 1 microsecond in compress-limit mode.
<b>Metering</b> .....	Gain reduction, output level +4 VU, +10 VU.
<b>AM-FM Operation</b> .....	Both. Standard 75 microsecond pre-emphasis/de-emphasis used in FM operation.
<b>Shielding and RF Filtering</b> .....	For use in high RF fields.
<b>Operating Temperature</b> .....	-20° C to +50° C.
<b>Physical Dimensions</b> .....	3 1/2" x 19" rack panel or 1/6th of 7" x 19" rack housing.
<b>Power Requirements</b> .....	120/240 volts 50-60 Hz., 10 watts.
<b>Weight</b> .....	6 lbs.