SYNTHESIZED PROFESSIONAL COMMUNICATIONS RECEIVER

Completely SOLID STATE • 2 to 32 MHz

CONFIGURED IN DIVERSITY FOR 4 CHANNEL ISB OPERATION.

CW • AM • AME • USB • LSB • ISB • FSK • FAX

For PROFESSIONAL Multi-Mode, Multi-Channel Communications use on the following types of circuits:

- POINT-TO-POINT
- GROUND-TO-AIR
- SHORE-TO-SHIP
- SHIP-TO-SHORE
- MOBILE
- ADMINISTRATIVE
- TACTICAL
- STRATEGIC
- CIVIL DEFENSE
- AIR TRAFFIC
- METEOROLOGIC

THE TECHNICAL MATERIEL CORPORATION

AND SUBSIDIARIES
GENERAL DESCRIPTION AND APPLICATIONS

The TMC Model DDRR-10 Series of receiving systems covering the frequency range of 2-32MHz are designed for professional reception of SSB, ISB, AM, AM equivalent, FSK, FAX, CW, MCW, Pulse or Phase signals. They are constructed from modular components to meet a wide variety of customer requirements for high performance receivers used on point-to-point, ground-to-air and mobile and other circuits. The versatility of the modules provides many options such as continuous tuned, diversity, non-diversity, synthesized and non-synthesized receivers. Other options include automatic frequency control, variations in IF bandpass filters and automated tuning.

The input dynamic range of the DDRR-10 Series has been carefully correlated with optimum sensitivity, selectivity, image rejection, unwanted radiation, cross talk, spurious response and stability to provide a receiver capable of accepting input variations of 110db with AGC without affecting performance characteristics. Further, the DDRR-10 Series will continue to provide usable signal output over a 130db dynamic range. As a result of these factors, the performance of the DDRR 10 Series exceeds that of other multi-channel receivers by its capability to maintain usable circuits for critical communications under severe signal conditions.

It should be evident to any communicator reading the specifications in this bulletin that here is a receiver which extends the "state of the art", a worthy successor to previous high quality receivers from TMC operating throughout the World.

OUTSTANDING FEATURES:

- FREQUENCY RANGE 2-32MHz  ●  130 db DYNAMIC RANGE
- TUNING TIME LESS THAN 10 SECONDS
- INDEPENDENT AGC (60db RANGE) ON EACH AUDIO CHANNEL
- AUTOMATIC FREQUENCY CONTROL FOR REDUCED CARRIER OPERATION
- SYNTHESIZED IN 100Hz INCREMENTS THROUGHOUT TUNING RANGE
- AUTOMATICALLY TUNES TO SYNTHESIZER SETTINGS
- MANUAL "OVER-RIDE" OF AUTOMATIC FEATURES
- CONTINUOUS FREQUENCY COVERAGE (NOT JUST 100Hz INCREMENTS) IN MANUAL MODE
- IF MONITOR OUTPUTS FOR PASSBAND SPECTRUM ANALYSIS
- OPTIONAL ENVELOPE DELAY DISTORTION CORRECTION FOR CRITICAL HIGH SPEED DATA CIRCUITS
- REMOTELY CONTROLLABLE IN INTRA-STATION AND INTER-STATION COMPLEXES, ADAPTABLE FOR COMPUTERIZED CONTROL (UP TO 50 RECEIVERS PER PROGRAMMER)
TECHNICAL SPECIFICATIONS

FREQUENCY RANGE
2MHz to 32MHz in four bands.

MODES OF RECEPTION:
SSB (USB, LSB), CW, MCW and AM; 4 ISB channels each 3kHz.

MODES OF RECEPTION WITH SUITABLE TERMINAL EQUIPMENTS:
FSK, FAX and data transmission.
CW, MCW, AM: 2.5/6.0kHz
Sideband: 3.0kHz

a. Remote/synthesized or local/synthesized: In 100Hz steps over 4 bands.
b. Local/non-synthesized: continuous over 4 bands.

CHANNEL WIDTHS (NOMINAL):

TUNING:

BAND DIVISIONS AND IF FREQUENCIES:

<table>
<thead>
<tr>
<th>Band</th>
<th>Freq.</th>
<th>IF Freq. 1st IF</th>
<th>2nd IF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2- 4MHz</td>
<td>.625MHz</td>
<td>250kHz</td>
</tr>
<tr>
<td>2</td>
<td>4- 8MHz</td>
<td>1.25MHz</td>
<td>250kHz</td>
</tr>
<tr>
<td>3</td>
<td>8-16MHz</td>
<td>2.50MHz</td>
<td>250kHz</td>
</tr>
<tr>
<td>4</td>
<td>16-32MHz</td>
<td>5.00MHz</td>
<td>250kHz</td>
</tr>
</tbody>
</table>

Note: Each Band Overlaps 1%

IF SELECTIVITY:

SENSITIVITY:

ANTENNA INPUT IMPEDANCE:

INTERMODULATION:
(In Channel)

FREQUENCY STABILITY:

FREQUENCY RESETABILITY:
FREQUENCY INDICATION:

AUDIO OUTPUTS:

50 ohms (nominal) unbalanced.

5.0μV with a 10db signal to noise ratio for A1, A3A and A3J reception.

1.0μV with a 15db signal to noise ratio for A2, A3 reception.

Down at least 50db with 2 tone RF inputs of 2μV to 200,000μV (Composite RMS).

a. Synthesized mode of stability: Receiver frequency stability is within 1 part in 10^4 for a change in ambient temperature within the range of 0°C to +50°C over a 24 hour period.
b. Automatic Frequency Control: Within 1Hz of the transmitted intelligence. Accommodates input signal drift of ±1000Hz at up to 10Hz/Sec. drift rate. Operates at carrier level of -30db referenced to 5μV input signal.

Absolute to 100Hz.

Digital electronic frequency display with cold cathode indicator tubes displaying to 100Hz resolution.

a. Four sideband channels or one symmetrical channel. Each channel delivers up to +10dbm into a 600 ohm balanced load.
b. Up to one watt output to a 4 ohm load. This can be switched to monitor each channel separately. Front panel control.
c. Headphone monitor circuit, switchable to monitor each channel separately. Front panel control.

a. The audio level of each sideband channel or the symmetrical channel may be adjusted separately by front panel control within the level of +10 dbm to −36dbm.
b. Four ohm load and headphone output continuously adjustable by front panel control.

−50 db at +10dbm audio output per channel.

The adjacent channel at least 55db from 0dbm in desired channel.

A minimum of 80db when referenced to a 1.0μV input signal.

A minimum of 100db when referenced to a 1.0μV input signal.

Panel control permits overall gain variation of 130 db. Switchable to AGC control.
TECHNICAL SPECIFICATIONS

AUTOMATIC GAIN CONTROL:

BEAT FREQUENCY OSCILLATOR:

INTERMEDIATE FREQUENCY OUTPUTS (MONITORING):

REMOTE CONTROL AND READBACK:

Audio output level remains constant within ±1.5db for signal input variations from 10uV to 1 volt at the antenna. Provisions for individual control for each channel AGC source and time constant (fast, medium, slow) settings.

For symmetrical channel, BFO adjustment range for CW reception is ±3kHz by front panel control.

At 250kHz —47db to 50 ohm load, One for each channel (four-in-all)

Standard Remote control is accomplished with a teletype format, and provides the following functions:
1. Frequency tuning in 100Hz increments.
2. Synthesized/AFC function selection.
3. Mode selection (ISB, CW/AM, 2.5/6.0kHz).
4. AGC control and time constant per channel.

Channelized Remote available as an option. Standard remote control console available with:

Programmer
Readback Indicator
Equipment Select Indicator

Note: Readback is provided for all above control positions plus tuning/ready/fault/status and AFC “out of sync” alarm.

REMOTE TUNING INTERFACE:

REMOTE READBACK INTERFACE:

POWER SUPPLY:
AMBIENT TEMPERATURE AND HUMIDITY:
DIMENSIONS (IN CABINET)
SINGLE RECEIVER:
DIVERSITY RECEIVER:

36H X 20¾W X 25¾ inches (Mounts in Standard 19” Panel Rack)
72H X 20¾W X 25¾ inches (Mounts in Standard 19” Panel Rack)

THESE SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE