

BULLETIN# 3018A

SYNTHESIZED PROFESSIONAL COMMUNICATIONS RECEIVER

TMC **DDRR-10**

AN/FRR-85 (v) 1

Completely **SOLID STATE** • 2 TO 32 MHz

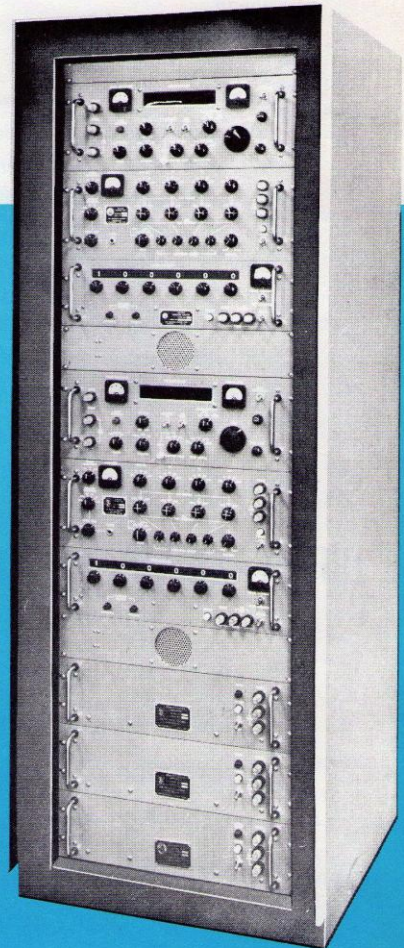
CONFIGURED IN DIVERSITY
FOR 4 CHANNEL ISB OPERATION.



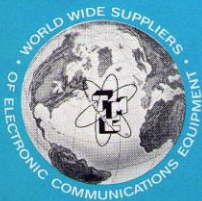
CW • AM • AME • USB • LSB • ISB • FSK • FAX

*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



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THE TECHNICAL MATERIEL CORPORATION

AND SUBSIDIARIES

TMC DDDR-10 GENERAL DESCRIPTION AND APPLICATIONS

The TMC Model DDDR-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 DDDR-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 DDDR-10 Series will continue to provide usable signal output over a 130db dynamic range. As a result of these factors, the performance of the DDDR 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:

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- 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)

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																				
CHANNEL WIDTHS (NOMINAL):	a. Remote/synthesized or local/synthesized In 100Hz steps over 4 bands. b. Local/non-synthesized continuous over 4 bands.																				
TUNING:	<table border="0"> <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>	Band	Freq.	IF Freq. 1st IF	2nd IF	1	2- 4MHz	.625MHz	250kHz	2	4- 8MHz	1.25MHz	250kHz	3	8-16MHz	2.50MHz	250kHz	4	16-32MHz	5.00MHz	250kHz
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BAND DIVISIONS AND IF FREQUENCIES:																					
Note: Each Band Overlaps 1% IF SELECTIVITY:	A1 A2 at 3db pts. 2.5kHz \pm 10% A3 at 3db pts. 6.0kHz \pm 10% A3A, A3J at 3db pts. 250Hz to 3040Hz inboard (A1/B1) 350Hz to 3040Hz outboard (A2/B2)																				
SENSITIVITY:	.5 μ V with a 10db signal to noise ratio for A1 A3A and A3J reception. 1.0 μ V with a 15db signal to noise ratio for A2, A3 reception.																				
ANTENNA INPUT IMPEDANCE:	50 ohms (nominal) unbalanced.																				
INTERMODULATION: (In Channel)	Down at least 50db with 2 tone RF inputs of 2 μ V to 200,000 μ V (Composite RMS).																				
FREQUENCY STABILITY:	a. Synthesized mode of stability: Receiver frequency stability is within 1 part in 10 ⁶ for a change in ambient temperature within the range of 0° to + 50°C over a 24 hour period. b. Automatic Frequency Control Within 1Hz of the transmitted intelligence. Accommodates input signal drift of \pm 1000Hz at up to 10Hz/Sec. drift rate. Operates at carrier level of -30db referenced to 5 μ V input signal.																				
FREQUENCY RESETABILITY:	Absolute to 100Hz.																				
FREQUENCY INDICATION:	Digital electronic frequency display with cold cathode indicator tubes displaying to 100Hz resolution.																				
AUDIO OUTPUTS:	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.																				
AUDIO LEVEL ADJUSTMENTS:	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																				
HUM LEVEL.	The adjacent channel at least 55db from 0dbm in desired channel																				
CHANNEL CROSS-TALK:	A minimum of 80db when referenced to a 1.0 μ V input signal.																				
IMAGE REJECTION:	A minimum of 100db when referenced to a 1.0 μ V input signal.																				
I.F REJECTION:																					
MANUAL RF GAIN CONTROL.	Panel control permits overall gain variation of 130 db. Switchable to AGC control.																				

DDRR-10

TECHNICAL SPECIFICATIONS

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AUTOMATIC GAIN CONTROL:

Audio output level remains constant within $\pm 1.5\text{db}$ for signal input variations from $1.0\mu\text{V}$ to 1.0 volt at the antenna. Provisions for individual control for each channel AGC source and time constant (fast, medium, slow) settings.

BEAT FREQUENCY OSCILLATOR:

For symmetrical channel, BFO adjustment range for CW reception is $\pm 3\text{kHz}$ by front panel control.

INTERMEDIATE FREQUENCY OUTPUTS (MONITORING):

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.

REMOTE CONTROL AND READBACK:

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:

Teletype loop 60 or 20Ma, neutral or polar Code format 7.42 unit pattern with 75 baud or 45 baud speeds.

REMOTE READBACK INTERFACE:

Dry contact keying from relay. Code format 7.42 unit pattern with 75 baud or 45 baud speeds.

POWER SUPPLY:

115/220/230V AC 50/60Hz single phase 275 watts.

**AMBIENT TEMPERATURE AND HUMIDITY:
DIMENSIONS (IN CABINET)**

0° to 50°C and up to 95% relative humidity

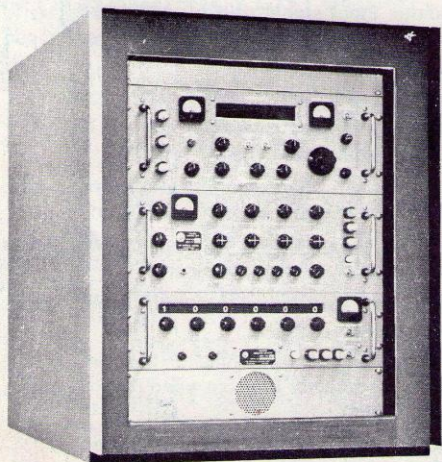
SINGLE RECEIVER:

36H X 20%W X 25D inches (Mounts in Standard 19" Panel Rack)

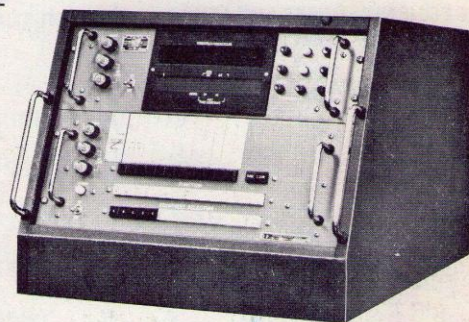
DIVERSITY RECEIVER:

72H X 20%W X 25D inches (Mounts in Standard 19" Panel Rack)

THESE SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE



CONFIGURED AS A SINGLE RECEIVER WITH 4 CHANNEL CAPABILITY



REMOTE AUTOMATIC CONTROL CONTAINING PROGRAMMER, READBACK INDICATOR AND EQUIPMENT SELECT FUNCTION.

We reserve the right to make engineering changes



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