



SMR-5555 DUAL MICROWAVE RECEIVER



FEATURES

- Dual Receivers, 1.0 to 18 GHz Tuning Range
- Synthesized in 10 kHz steps
- High Dynamic Range
- Optimized for PCM/TDM and FM/FDM Reception
- Selectable Wideband IF Outputs:
70/140 MHz standard
70/160 MHz optional
- Excellent BER Performance
- Five IF Bandwidths for FM Demodulation on each Receiver
- RS-232 Control

DESCRIPTION

The SMR-5555 Dual Microwave Receiver is comprised of two synthesized CW receivers that each tune from 1 GHz to 18 GHz in 10 kHz steps and have selectable IF outputs of 70 MHz (3 dB bandwidth of 50 MHz) or 140 MHz (3 dB bandwidth of 80 MHz).

At power on, the front panel display indicates which receiver is designated as horizontal (H-top receiver, V-bottom receiver) and which is designated as vertical.

Additional features on each receiver channel include:

- FM output at the rear panel with predetection bandwidths of 5, 10, 15, and 20 MHz.
- Manual and automatic IF gain control.
- Receiver signal strength indication.
- Front panel controls.
- RS-232 remote control.
- Internal or external 10 MHz reference.
- Excellent BER and NPR specifications for PCM and FDM reception.

M/A-COM's new SMR-5555 fills the need for a low-cost, dual-channel, high performance microwave receiver. This receiver system has all the

SMR-5555

necessary features for reception of complex order, high data rate PCM/TDM and high capacity FM/FDM communication signals. The SMR-5555's electrical design features low group delay distortion and low phase noise characteristics necessary to assure virtually error-free reception of digitally modulated signals over a wide dynamic range of received signal strength. Through the use of low-cost commercial components and high volume receiver production, M/A-COM's SMR-5555 sets a new standard for performance-to-cost value in microwave receiving equipment.

The SMR-5555 covers the entire 1-18 GHz frequency range in tuning steps as small as 10 kHz. Two operator-selectable, wideband IF outputs are provided from each receiver channel. These outputs can be set to 70 or 140 MHz. As an option, a 160 MHz output can be provided in place of 140 MHz IF output. The IF bandwidth at 70 MHz is 50 MHz, and the 140/160 MHz IF bandwidth is 80 MHz. The IF output features AGC or manual gain control. A demodulated FM video output is provided, along with the ability to select one of five IF bandwidth filters; 5, 10, 15, 20, and 50 MHz (other bandwidths available upon request). The IF filters and FM discriminator are designed for high NPR performance for all high capacity FM/FDM signal formats.

All receiver functions are controllable from the front panel or via RS-232C serial interface. Control/status functions

include: tuned frequency, IF output frequency select, IF gain mode (AGC/MGC), IF gain level, FM video level, FM bandwidth, signal strength, BIT status and receiver I.D. A system "kill" command is provided to reset all functions to a default condition.

Other features include 10 MHz internal or external reference frequency and built-in-test (BIT) of power supply voltages, internal temperature, and phase lock status. The unit is tested and performs over the 0 to 50° C operating temperature range. The SMR-5555 is housed in a 2U (3.5 inch high), full rack width chassis. All connectors are on the rear panel. Positive, forced air cooling is provided through front panel cooling fans. Mechanical construction, shielding, and filtering techniques assure EMI/RFI compliance with applicable categories of MIL-STD-461C.

The SMR-5555 Receiver is designed for low life cycle cost and ease of maintainability. All major assemblies and most active components are connectorized to facilitate field repair and module replacement. Power, control, and signal lines are contained within the same harness, and all connectors are keyed and labeled to prevent erroneous connections. No alignment or adjustment is required after module replacement, and modules are interchangeable between receivers.

SMR-5555 RECEIVER SPECIFICATIONS

Frequency Coverage (of each independent receiver channel)	1 to 18 GHz	Image Rejection	60 dB, minimum 70 dB, typical
Frequency Resolution	10 kHz	Third Order Input Intercept Point	-5 dBm, minimum 0 dBm, typical
External Reference Input	10 MHz, 0 dBm	Spurious-free Dynamic Range	60 dB, typical
External Reference Output	10 MHz, TTL	LO Spurious	-53 dBc, maximum
Noise Figure	15 dB, maximum	Wideband IF Outputs	70 MHz & 140 MHz standard 70 MHz & 160 MHz optional
Phase Noise	0.7° rms, typical (SSB)		
Input VSWR	2.5:1, maximum		
Preselection	Suboctave filters		
LO Radiation	-90 dBm, maximum antenna conducted		

(The wideband IF output from each channel is split, providing two outputs from each receiver channel containing the same signal information)

SMR-5555

Bandwidth - IF Output	70 MHz IF: 50 MHz BW 140 MHz IF: 80 MHz BW Optional 160 MHz IF: 80 MHz BW
IF Rejection	80 dB, typical
Group Delay	6 ns p-p, over 80% of 3 dB bandwidth
Video Gain Control	0 to 100%
Video Output Level	1 Vp-p @ 100%
Video Impedance	75 Ω nominal, 50 Ω available
IF AGC/MGC	60 dB in 1 dB steps; - 20 dBm output level in AGC
FM Demodulator	70 MHz IF, five bandwidths: 5, 10, 15, 20, and 50 MHz

Typical FDM NPR

Channels	Low Slot	High Slot
960	45	35
1200	45	35
1800	40	35
2700	40	35

Built-In-Test (BIT)	Power supply voltages, temperature, phase lock status
EMI Shielding	Built to Meet MIL-STD-461C, CE03, and RE02
Humidity	90% non-condensing at +40°C
Shock	Meets or exceeds MIL-STD-810D, method 516.3
Vibration	Meets or exceeds, MIL-STD-810D, method 514.3-1
Temperature Range, Operating	0° to +50°C
AC Power (each channel)	Universal Input - 95-265 Vac, 47-440 Hz
Size	3.5" H x 22" D x 17" W 8.89 cm H x 55.88 cm D x 43.18 cm W Mounts in Standard 19" rack
Weight	40 lbs. (18.14 kg)
Digital Control	RS-232, See Options

Specifications guaranteed at 25°C.
Specifications are subject to change without notice.

OPTIONAL CONFIGURATIONS

- RS-422
- 160 MHz IF in place of 140 MHz IF
- Other IF Bandwidths
- 2 kHz Step Size
- AM Detector
- High Stability Reference
- Frequency Converter Configurations (No Demod)

SMR-5555

Available Bandwidths

Narrowband Set

(No more than two)

3 dB Bandwidth (MHz)

1.0

1.5

2.0

2.5

Wideband Set

(No more than four)

3 dB Bandwidth (MHz)

3.0	3.5	4.0
4.5	5.0	5.5
6.0	6.5	7.0
7.5	8.0	8.5
9.0	9.5	10.0
11.0	12.0	13.0
14.0	15.0	16.0
18.0	20.0	22.0
24.0	26.0	28.0
30.0	32.0	34.0
36.0	38.0	40.0

NOTE

The user may select a total of four bandwidths (3 dB) from the narrowband and wideband sets, provided that no more than two (2) are selected from the narrowband set. A fifth IF bandwidth, fixed at 50 MHz, is available in addition to the four selectable bandwidths.

WARRANTY

All M/A-COM SIGINT Products' equipment is warranted for one year, except for damage caused by accident or misuse, provided the equipment is returned for repair to the plant in Hunt Valley, Maryland, U.S.A.



M/A-COM SIGINT PRODUCTS
10713 Gilroy Road, P.O. Box 868
Hunt Valley, MD 21030-0868 U.S.A.
Phone 410-329-7900
FAX 410-329-7990

e-mail: sigintsales@tycoelectronics.com
www.macom.com/sigint

tyco / Electronics

JQUS