

# VSR1 Analog Video/Audio/Data Receiver

*An Excellent Microwave Video Receiver  
with an Exceptionally Low Noise Figure!*



## Design Features

- 7.4 Cubic Inch Package (2.50"x3.50"x0.85")
- Weighs < 6 oz.
- Low Current Draw (Extends Battery Life)
- Low Noise Figure (More Range)
- Full Frequency Band Channelization
- 3 Frequency Selection Modes
- Supports Composite Video (NTSC or PAL)
- Optional Dual Audio or Data Subcarriers
- Received Signal Strength Indication (Chassis Display and Remote Query)
- J-STD-001D Class 3 Assembly (Medical/Aerospace)

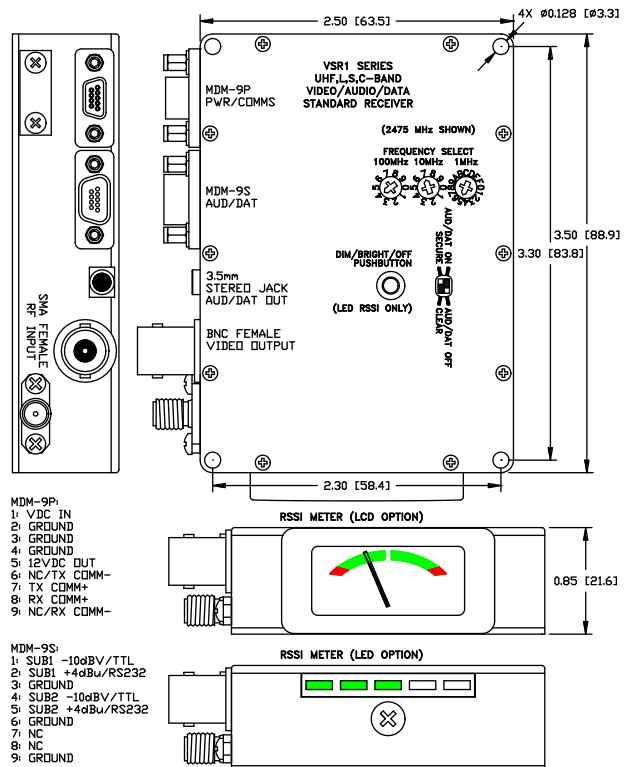
## VSR1 Series

VSR1 receivers feature innovative circuit designs to reduce power consumption for significantly longer battery life and to reduce noise figure for substantially more range. Lower noise figure improves video quality and reduces the required transmitter output power thereby reducing transmitter battery requirements.

Receiver carrier frequency may be selected locally with BCD rotary switches, remotely, and locally/remotely with a programmable binary switch. Slide switches allow selection between standard (positive) and inverted (negative) video and subcarrier On/Off. Received signal strength is indicated with a local display (LCD meter or LED bar) and via remote query. If equipped with an LED display, intensity may be controlled by a local pushbutton switch.

If your application requires video and audio or data reception, VSR1 receivers are optionally configured with up to 2 audio or data subcarriers with dual outputs for driving auxiliary devices.

VSR1 receivers are ideal for UAV, UGV, Military, and other applications requiring high quality diversity video reception in a compact, rugged package.



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# VSR1 Analog Video/Audio/Data Receiver

## RF Characteristics

Frequency Range (Specify):	UHF:	340.0-399.9 MHz	100 kHz Channels
(Other Ranges Available)	Lower L-Band:	1435-1535 MHz	1 MHz Channels
	Upper L-Band:	1700-1850 MHz	1 MHz Channels
	Lower S-Band:	2200-2399 MHz	1 MHz Channels
	Upper S-Band:	2400-2499 MHz	1 MHz Channels
	Full S-Band:	2200-2499 MHz	1 MHz Channels
	Dual L/S-Band:	1700-1850/2200-2499 MHz	1 MHz Channels
	Lower C-Band:	4400-4900 MHz	1 MHz Channels
	Upper C-Band:	4900-4999 MHz	1 MHz Channels
	Full C-Band:	4400-4999 MHz	1 MHz Channels
Frequency Selection (Specify):	Full Band Channelized - Remote Control Only or Remote/Programmable Switch/Local BCD		
Maximum RF Input:	+10 dBm Without Damage		
Input Impedance:	50 $\Omega$ Nominal, VSWR 2:1 Maximum		
Noise Figure:	< 3 dB		
Image Rejection:	> 60 dB		
Signal Strength Output:	Local Display and Remote Query		

## LO/IF Characteristics

LO Stability:	$\pm 5$ ppm Over $-20^{\circ}\text{C}$ to $+60^{\circ}\text{C}$		
IF Frequency:	UHF: 153.6 MHz, L/S: 374 MHz, C: 480 MHz		
IF Bandwidth:	17 MHz Nominal		
Harmonic and Spurious Level:	-25 dB Maximum		

## Video Characteristics

Modulation Type:	Analog FM, Standard (Positive) or Inverted (Negative) Sense, (Selectable)		
Video Standard (Specify):	NTSC (10Hz to 4.2MHz, 525 Line D/E) or PAL (10Hz to 5.0MHz, 625 Line D/E), +/- 1.5dB		
Output Level:	1 Vpk-pk/ $\pm 4$ MHz @ Crossover Frequency into 75 $\Omega$ Load		
Output Impedance:	75 $\Omega$ Nominal, Unbalanced		

## Audio/Data Subcarrier Characteristics

Subcarriers (Specify):	None, One, or Two - Audio or Data		
Subcarrier Frequency (Specify):	5.8, 6.0, 6.2, 6.5, 6.8, 7.2, 7.5, 8.3, or 8.59 MHz, or Custom		
Subcarrier Separation (Two):	700 kHz Minimum		
Frequency Stability:	$\pm 0.5\%$ Over $-20^{\circ}\text{C}$ to $+60^{\circ}\text{C}$		
Subcarrier On/Off Control:	Local, Remote, and Programmable Switch		
Modulation Type:	Analog FM, Positive Sense		
Frequency Response:	100 Hz to 10 kHz $\pm 1.5$ dB (Audio) or DC to 50 kbps (Data)		
De-Emphasis:	75 $\mu\text{sec}$ NTSC or 50 $\mu\text{sec}$ PAL (Audio) or None (Data)		
Output Level:	-10 dBV and +4 dBu Line / 150 kHz pk-pk @ 1 kHz Rate into 10 k $\Omega$ Load (Audio) or RS232 and TTL / 150 kHz pk-pk Deviation (Data)		
Output Impedance:	100 $\Omega$ Nominal, Unbalanced (Audio) or 300 $\Omega$ (Data)		

## Configuration Interface Characteristics

Interface Type:	Two-Way UART		
Signalling Type (Specify):	RS232, RS485, RS422, or 3.3V TTL		
Interface Parameters:	9600/8/1/None/None (Baud/Data Bits/Stop Bits/Parity/Handshake)		

## Power Requirements

Input Voltage:	+11 to +16 Vdc, Reverse Polarity Protected		
Current Draw (Typical at 12V):	230 mA		
Auxiliary Supply Output:	+12 Vdc, 0.5 A Current Limit		

## Mechanical

Material:	CNC Machined T6061-T6 Aluminum		
Finish (Specify):	Nickel Plated or Gold Iridite		
Dimensions:	2.50" W x 3.50" L x 0.85" H		
Weight:	<6 oz.		
RSSI Display (Specify):	LCD Analog Bar Meters or LED Light Bars - Local Enable and Intensity Control (LED)		
Connectors:	RF Input:	SMA Female	
	Video Output:	BNC Female	
	DC Supply, 12V Out, Comms:	MDM-9P	
	Audio Output, Data Output	MDM-9S	
	Audio Output:	3.5mm Stereo Jack	

## Environmental

Temperature (Operating):	$-20^{\circ}\text{C}$ to $+60^{\circ}\text{C}$		
Acceleration:	100 g, 3 Axes		
Altitude:	Unlimited		
Humidity:	Up to 95% @ Any Temperature Forming Frost or Condensation		