Newscaster DR2

Digital COFDM Diversity HD / SD Receiver

Applications:

- Electronic News Gathering (ENG)
- Portable Receive
- Central Receive
- Urban cellular receive
- Sports/production coverage
- Helicopter and UAV links

Features:

- Quad maximum ratio combining
- Remote intelligent receiver
- COFDM DVB-T
- Variable bandwidth COFDM — 5 to 16 MHz
- Pre-select bandpass filters for high selectivity
- Built-in HD/SD video/audio decoder
- Dual ASI/video outputs
- One ASI input
- Built-in spectrum analyzer displayed on front panel
- Composite monitor output with spectrum OSD overlay
- High adjacent channel selectivity >40 dB
- Rugged, solid-metal construction
- Available 1.99 to 2.7, 5.7 to 5.9, 6.4 to 7.2 and 7.25 to 7.75 GHz
- Color TFT display
- Ten quick-touch pre-set selections
- User control via sensor wheel
- Remote control with Ethernet or RS-232/RS-485
- AC and DC operation

The Newscaster DR2 is a split box HD / SD COFDM diversity microwave receiver intended for outside broadcast and other mobile video applications. Its stylish rugged machined housing provides durability and excellent thermal characteristics for operation in the harshest of conditions. The receiver has four RF inputs that communicate directly with the system's external intelligent receivers in 1.99 to 2.70 GHz, 5.7 to 5.9 GHz and 6.4 to 7.2 GHz. Other bands are available. The use of external intelligent receivers allows the receive antennas to be remotely mounted.

The DR2 receiver can be configured with dual or quad diversity demodulators using maximum ratio combining, which significantly improves the robustness of higher data rate COFDM modulation. Spatial diversity increases system performance by digitally combining signals with different characteristics. This essentially fills in the gaps in the channel and provides improved path reliability. The built in spectrum analyzer gives an instant analysis of the selected channel and can be used to minimize multi-path or see if the channel is clear from interference. Individual antennas can be switched off as required to maximize link reliability.

The DR2 is available with bandwidths 5, 6, 7, 8, 10, 12, 14 and 16 MHz allowing for 4 to 54 Mbps data rates.

The Newscaster DR2 receiver is configured with an internal low latency all format HD / SD decoder. A DVB-ASI output is available that can be fed to an external decoder. The control panel uses a touch sensor disc that provides easy navigation through the menu system. Remote control is facilitated by RS-232/RS-485 and Ethernet.

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Frequency Range:

2 GHz Band:	1.99 GHz to 2.7 GHz
5.8 GHz Band:	5.7 GHz to 5.9 GHz
7 GHz Band:	6.40 GHz to 7.1 GHz
(Other Bands available with external intelligent receiver)	
IF interface to Intelligent Receiver:	326 MHz, 374 MHz
Tuning Step Size:	250 kHz (US), 100 kHz (International)

RF Performance:

Input Range:	-20 dBm to -92 dBm
Bandwidth:	5 MHz to 16 MHz
Stability:	+/- 2.5 ppm

COFDM Demodulator Decoder:

Programmable:

COFDM:	DVB-T 2K: 5, 6, 7 and 8 MHz 10, 12, 14 and 16 MHz
Threshold:	-92 dBm @ 8 MHz QPSK 1/2, 1/32
Modulation:	QPSK, 16QAM, 64QAM
FEC:	1/2, 2/3, 3/4 5/6, 7/8
Guard Interval:	1/32, 1/16, 1/8, 1/4
Data Rate:	4 to 54Mbps

MPEG-2 Video Decode Section:

Digital Video Formats:

Video Formats:	SD:NTSC, PAL; 4:2:0, 4:2:2, user selectable
Video Sampling Rates:	HD: 720p 50/60 1080i 25/29.97/30
Frame Size:	NTSC (720 x 480i/525), PAL (720 x 576i/625), HD: 1280 x 720p (50/60Hz), 1920 x 1080i (23.98, 24, 25, 29.97, 30) to 1440 x 1080i (23.98, 24, 25, 29.97, 30)

Video Outputs Section:

Video Output Formats:	2 BNC 75Ω outputs can select from list below SMPTE-292M HD-SDI SMPTE-259M SD-SDI DVB-ASI SMPTE-299
Analog Composite:	75 Ohms 1Vp-p NTSC/PAL 525/625Lines
Genlock Input:	SD: NTSC/PAL 1V 75R composite video HD: Tri-level sync Cross-capable between HD/SD
Test Pattern Generator:	Internal SD/HD test bar generator, format user selectable SMPTE or Full Field.

Audio Section:

Audio Output:	2 stereo pairs, selectable line, AES/EBU Audio always present on embedded SDI (SMPTE 272, SMPTE 299)
Decoding Scheme:	ISO 13818-3 MPEG-1 Layer 1 & Layer Linear PCM
Audio Bit Rate:	128kbit/sec, 384kbit/sec per stereo pair (MPEG Layer ½).Linear PCM 1.6Mbit/pair
Sample Rate:	48kHz
Frequency Response:	20Hz – 20kHz: +/- 0.5dB
Audio THD:	<0.1% (@ 1kHz +8dBm
Signal/Noise:	> 68dB (@ 1 KHz, +8dBm
Gain:	Analog gain adjust, +/- 6dB in 1dB increments
Max Line Output Level:	+18dBm
Output Impedance:	Analog line: 600 Ohm, balanced AES: 110 Ohm, balanced
Tone Generator:	Internal 1k/400Hz tone generator, user selectable

Control:

RS-232/RS-485:	9.6, 19.2, 38.4, 115 K baud
Ethernet:	10 base T programmable IP address or DHCP

Control Panel:

Display:	High resolutions 2.7 inch color TFT
Indication:	RF input power, input DC voltage and current MPEG video lock, alarms voltage, temperature, Spectrum Analyzer
Input:	Sensor wheel encoder with audible feed back
Presets:	Ten user defined presets
Menu:	Interactive basic/advanced menu tree allowing control of presets, frequency, COFDM parameters

Connectors:

RF Connector:	Four “N” (F)
ASI/SDI Out:	75 Ohm BNC x 2
Video Monitor Out:	75 Ohm BNC
ASI In:	75 Ohm BNC
Genlock In:	75 Ohm BNC
DC Power:	4 pin XLR
Audio:	5 pin XLR x 2
User Data:	DB9-RS422
Remote Control:	DB9 (F), RS232/USB “B”/RJ45 Ethernet USB “B” Connector

Power Requirements:

DC Input Voltage Range:	+10.5 TO +28 VDC – under voltage and reverse polarity protected.
DC Power:	75 Watts @ 11 Volts DC with dual pedestal and quad diversity
AC Input Voltage Range:	100 to 240 AC 50 to 60 Hz

Physical:

	DR2 Receiver	Block Down Converter
Dimensions:	3.79"H x 8.63"W x 14.13"D (9.6 x 21.9 x 35.9 cm)	1.61"H x 3.66"W x 6.60"D (4.09" x 9.29"x16.76 cm)
Weight:	15.90 lbs (7.21 kg)	1.8 lbs (0.82 kg)

Environmental:

Operating Temperature:	-10°C to +50°C
Storage Temperature:	-40°C to +80°C
Humidity:	95% -10°C to +50°C no condensation

Nucomm™
A Vitec Group brand

Nucomm™
200 International Drive, Mt. Olive, NJ 07828 USA
T. +1.908.852.3700 F. +1.908.813.0399 www.imt-broadcast.com