



DD240

Digital Video Broadcast Demodulator



HIGHLIGHTS

- Feature and software upgrades readily available through easy-to-install PCMCIA feature cards
- Data rates up to 144 Mbps (variable in 1 bps steps)
- QPSK, 8PSK and 16QAM operation
- Rate 1/2, 2/3, 3/4, 5/6, 7/8, 8/9
- Reed-Solomon outer coding
- Frequency-agile 50 - 90, 100 - 180 and 950 - 2150 MHz
- EN 300-421, DVBS and MPEG-2 compliant
- EN 301-210, DVB-DSNG compliant
- Low-profile chassis - 1U high (1.75")
- User-friendly front panel interface
- Optional redundancy configuration
- Internal Doppler buffer

THE NEW STANDARD IN DVB PERFORMANCE

Radyne's DD240 High-Speed Video Broadcast Demodulator is the ideal choice to meet the exacting standards of high data-rate Video, Internet and Internet satellite applications. Meeting the DVB standards EN301-210 and EN 300-421, the unit supports QPSK, 8PSK and 16QAM applications with symbol rates up to 45 Msps. Supporting a variety of data and IF interfaces, the DD240 is configurable to meet most high-speed satellite applications.

The powerful new onboard Monitor and Control (M&C) processor has the unique capability to download upgraded firmware and enhanced features from a field-changeable PCMCIA card. Offering unprecedented flexibility, this feature represents a new level of Radyne's outstanding Customer Service. Additionally, features are added to the installed equipment base with extreme ease, allowing the equipment to expand with changes in service while lowering initial installation budgets.

The DD240 offers a frequency-agile IF input from 950 to 2150 MHz and 50 to 90 or 100 to 180 MHz in 1 Hz steps. Variable data rates from 1 Mbps to 144 Mbps can be set in 1 bps steps.

The Demodulator also offers the choice of remotely interfacing through one of two rear panel connections: Ethernet or RS485. The familiar Radyne front panel offers push-button control of all features and a backlit LCD display. Menus are specifically designed for ease of use and quick operation as well as changes in all demodulator parameters. For applications requiring system redundancy, the DD240 may be used with the Radyne RCS11 1:1 Redundancy Switch or the RCS20 M:N Redundancy Switch.



DD240 Digital Video Broadcast Demodulator

SPECIFICATIONS (EN301-210 AND EN300-421 COMPLIANT)

Standard IF Specification

IF Interface

L-Band Specification (Standard)

Rx IF: 950-2150 MHz
 IF Step Size: 1 Hz
 Input Level: C0+10 log (Symbol Rate), C0: -130 dBm/Hz to 105 dBm/Hz
 -70 to -45 dBm @ 1 Msps
 -60 to -35 dBm @ 10 Msps
 -53 to -28 dBm @ 45 Msps
 Composite Power: < -20 dBm total input power
 LNB Power: 18V +/- 0.5 V, 350 mA max
 Input Impedance: 75 Ohm
 Return Loss: 7 dB
 Input Connector: F Connector

Optional 70/140 MHz Specification (Includes L-Band)

Rx IF: 70/140 MHz
 IF Step Size: 1 Hz
 Input Level: C0+10 log (Symbol Rate), C0: -130 dBm/Hz to 105 dBm/Hz
 -70 to -45 dBm @ 1 Msps
 -60 to -35 dBm @ 10 Msps
 -53 to -28 dBm @ 45 Msps
 Composite Power: < -20 dBm total input power
 Input Impedance: 75 Ohm
 Return Loss: 15 dB
 Input Connector: BNC Female

BASEBAND

Variable data rate: 1 to 144 Mbps
 Step Size: 1 bps
 Symbol Rate: 1 to 45 Msps

Forward Error Correction (FEC) Decoding

Inner Code: PTM (8PSK, 16QAM), Viterbi (QPSK)
 Code Rates: QPSK = 1/2, 2/3, 3/4, 5/6, 7/8
 8PSK = 2/3, 5/6, 8/9
 16 QAM = 3/4, 7/8
 Outer Code: Reed Solomon, Per EN 300-421 (204,188, T=8)
 Deinterleaving: Convolutional, l=12, Per EN 300-421
 Data Descrambling: Per EN 300-421
 Terrestrial Framing Modes: 204, 188, 187
 Internal Clock Source: 10 ppm
 Stability:
 Internal Doppler Buffer: 0 to 64 msec.

MONITOR AND CONTROL

Interface: Serial RS485 (Remote) and SNMP v1, v2, v3, 10BaseT Ethernet
 Parameters Controlled: IF Frequency
 Data Rate
 Symbol Rate
 Clock Polarity
 Data Polarity
 Inner Code Rate
 Test Modes
 Spectral Inversion
 Spectral Shape Factor
 Parameters Monitored: Input Level (+/- 5 dBm)
 Eb/No (+/- 1.0 dB)
 BER
 Faults
 Stored Faults

OPTIONAL DATA INTERFACES

Serial: G.703, E3, T3, STS-1
 DVB ASI
 HSSI
 RS-422/449
 ECL
 Parallel: RS-422 (M2P, DVB)
 LVDS (M2P, DVB)

ENVIRONMENTAL

Prime Power: 100-240 Vac, 50-60 Hz, 40 Watts Max.
 Operating Temp: 0 to 50° C
 Humidity: Up to 95%, non-condensing
 Storage Temp: -20 to 70° C
 Humidity: Up to 99%, non-condensing

PHYSICAL

Weight: 10 pounds (4 Kg)
 Size: 19" W x 17" D x 1.75" H (48.3 x 43.2 x 4.45 (cm))

OPTIONS 48 Vdc Prime Power (contact factory)

CONFIGURATION SERIES

| Series | Symbol Rate (Msps) | Modulation | MPEG Max Data (Mbps) | Unframed Max Data Rate (Mbps) |
|--------|--------------------|-------------------|----------------------|-------------------------------|
| 100 | 1 - 10 | QPSK | 16.127451 | 16.041667 |
| 200 | 1 - 45 | QPSK | 72.573529 | 72.187500 |
| 300 | 1 - 45 | QPSK, 8PSK | 110.588235 | 110.000000 |
| 350 | 1 - 45 | QPSK, 8PSK, 16QAM | 145.147059 | 144.375000 |

| Specified IF Back-to-Back Eb/No Performance | | | | | | | | | | |
|---|------|-----|-----|-----|-----|------|-----|------|-------|------|
| BER | QPSK | | | | | 8PSK | | | 16QAM | |
| | 1/2 | 2/3 | 3/4 | 5/6 | 7/8 | 2/3 | 5/6 | 8/9 | 3/4 | 7/8 |
| 1.00 x 10 ⁻⁰⁷ (< 20 MSPS) | 3.9 | 4.4 | 4.9 | 5.4 | 5.8 | 6.3 | 8.3 | 8.8 | 8.4 | 10.1 |
| 1.00 x 10 ⁻⁰⁷ (> 20 MSPS) | 3.9 | 4.5 | 5.1 | 5.8 | 6.4 | 6.5 | 8.8 | 9.8 | 8.6 | 11.1 |
| 1.00 x 10 ⁻¹⁰ (< 20 MSPS) | 4.5 | 5.0 | 5.5 | 6.0 | 6.4 | 6.9 | 8.9 | 9.4 | 9.0 | 10.7 |
| 1.00 x 10 ⁻¹⁰ (> 20 MSPS) | 4.5 | 5.1 | 5.7 | 6.4 | 7.0 | 7.1 | 9.4 | 10.4 | 9.2 | 11.7 |

| Typical IF Back-to-Back Eb/No Performance | | | | | | | | | | |
|---|------|-----|-----|-----|-----|------|-----|-----|-------|-----|
| BER | QPSK | | | | | 8PSK | | | 16QAM | |
| | 1/2 | 2/3 | 3/4 | 5/6 | 7/8 | 2/3 | 5/6 | 8/9 | 3/4 | 7/8 |
| 1.00 x 10 ⁻⁰⁷ (< 20 MSPS) | 3.1 | 3.8 | 4.2 | 4.6 | 5.1 | 5.7 | 7.5 | 8.4 | 7.7 | 8.7 |
| 1.00 x 10 ⁻⁰⁷ (> 20 MSPS) | 3.1 | 4.0 | 4.3 | 5.0 | 5.3 | 5.7 | 7.6 | 9.0 | 8.0 | 9.0 |



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