

MANN-DMR310 Digital Radio

PDH, SDH, IP (Ethernet, Gigabit) System

7/8GHz, 11GHz, 13GHz, 15GHz, 18GHz, 23GHz, 26GHz, 38GHz

DMR-310 microwave system provides high capacity transmission, flexibility, reliability, rich features and convenience for wireless communications networks.

DMR-310 digital point- to-point radio series represents a new microwave radio product line that is designed to address universal applications for high capacity Ethernet, PDH and SDH platforms. This advanced technology platform is designed to provide high flexibility to operators currently and in the future.

DMR-310 series is based upon a common platform to support a wide range of network interfaces and configurations, including PDH (16×E1s, 32×E1s and 63×E1s*), Ethernet (Gigabit, 1×100Base-T 2×100Base-T), and STM-1(2×STM-1). The radio family is spectrum and data rate scalable.

DMR310 Supports XPIC functionality to provide operators with efficient network utilization.

DMR-310 digital radio series enables network operators (mobile and private), government and access service providers to offer a portfolio of secure and scalable wireless applications for data, video, and voice services.

DMR-310 IDU allows selection from multiple capacity options, modulation types, radio frequency channels and transmitting output power levels to accommodate and adhere to world-wide regulations and spectral efficiency requirements.

DMR-310 supports 1+0 and 1+1 protection and ring architectures. The modem and power supply functions are provided by applying easily replaceable plug-in modules.

DMR-310 digital radio includes integrated OAM&P (Operations, Administration, Maintenance, and Provisioning) functionality and design features that enable simple commissioning when the radio network is initially set up in the field.

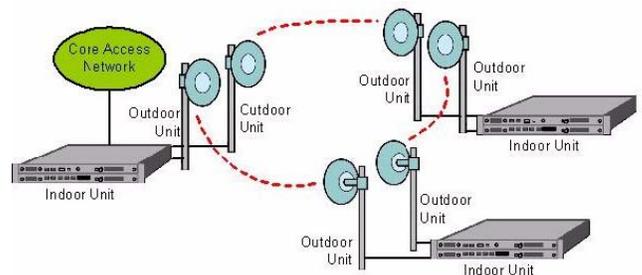
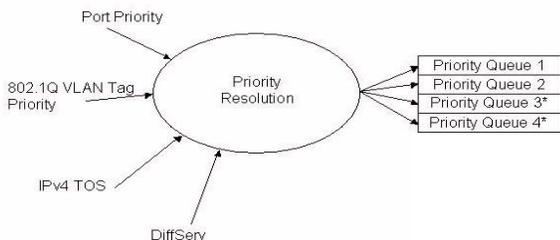


Product Features and Benefits:

- 16/32/63×E1s, Gigabit, 1 or 2×100Base-T, Ethernet, and 2×STM-1**One Platform for Access and Core Networks.**
- Bandwidth capacity and modulation controlled by software.**Timely Upgrade to meet Network Needs**
- Support 1+0, 1+1, 2+0, west/east applications (with ADM capability).....**Single Platform Reduces CAPEX**
- XPIC Supported in 1+0 and 1+1 Hot Standby Mode..... **Efficient Utilization of Frequency Channels**
- Ring application with cross connect function**Allows Building of Resilient Networks**
- FEC- Trellis coded modulation concatenated with Reed-Solomon coding .**Improved Link Performance**
- Field upgradeable by Plug-In assembly**Ease of upgrade/migration from TDM to IP N/W.**
- RF, IF, digital loopback capability with Built-in BER monitor**Fast Fault Identification**
- Delay setting for hitless (errorless) switching**Maintain Continuous Service Availability .**
- Wide operating temperature range**Ideally suited for placement in most Telecom Sites.**
- SNMP network management protocol**Can be managed by Spectview EMS or Easily integrated into any SNMP based EMS/NMS**

System.

- Up to 300 meters separation between IDU and ODU
- Wide DC power input range and low power consumption





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DMR310 Specifications									
Frequency	7GHz	8GHz	11GHz	13GHz	15 GHz	18 GHz	23 GHz	*26 GHz	*38 GHz
	7.1 to 7.9	7.7 to 8.5	10.7 to 11.7	12.7 to 13.3	14.4 to 15.4	17.7 to 19.7	21.2 to 23.6	24.2 to 26.5	37.0 to 40.0
Standard	ETSI/ITU/FCC								
RF Output Power(dBm)									
- QPSK	30	30	28	26	26	26	25	25	23
- 16/32 QAM	28.0	28.0	26.0	24.0	24.0	23.0	23.0	22.0	20.0
- 64/128QAM	25.0	25.0	22.0	20.0	20.0	19.0	19.0	19.0	17.0
- 256QAM	23.0	23.0	20.0	18.0	18.0	17.0	17.0	17.0	15.0
TX Power Accuracy	+/-2dB								
Tuning Increment	1dB								
RX at BER=10 ⁻³	-73dBm		-72dBm			-71dBm		-70dBm	
RX at BER=10 ⁻⁶	-70dBm		-69dBm			-68dBm		-67dBm	
RF Bandwidth	7, 14, 28, 40, 56MHz								
Max. Power consumption (1+0/1+1)	55W/85W					60W/90W			
Impedance	E1= 75 Unbalanced or 120 Balanced; Fast Ethernet=100ohm Balanced								
Interfaces	E1 = HDB3, STM1 Electrical or Optical Ethernet: Full duplex 100Base-T, Gigabit Ethernet								
Network Management	SNMP based Spectview EMS System or Telnet								
Optical Interface	Single mode 1310nm								
IF Port: For 50 coaxial ODU N/IDU TNC connector, Female						Elevation:	15,000ft / 4572 meters		
RSSI: Output voltage vs. RSL : 0 ~ 3V vs. -70 ~ -25dBm						Frequency Stability:	±5ppm		
RSL Accuracy : ±2 dB						Max Input Level without Damage:	0dBm		
Ambient Temperature: IDU: -5~ 55C; ODU: -35~ +55C						Frequency Source:	Synthesizer		
Humidity: IDU: 0 ~ 95%, no condensation; ODU: all weather									
Weight & Dimension: IDU: 3.4 kg /445x238.5x44.5 mm ³ ; ODU: 3.9kg/225x225x90mm ³									
System Configurations: Non-protected (1+0), Protected (1+1), Space Diversity, Frequency Diversity, 2+0 or East-West									
System Capacity	16E1, 32E1, 63E1, 2 x STM1 Optical and Electrical, Ethernet (upto 155M) and Gigabit Ethernet (upto 600M)								

Modulation Type	Channel Bandwidth (MHz)				
	7	14	28	40	56
QPSK	11 Mbps	22 Mbps	44 Mbps	64 Mbps	89 Mbps
16 QAM	22 Mbps	44 Mbps	89 Mbps	128 Mbps	179 Mbps
32 QAM	28 Mbps	56 Mbps	112 Mbps	160 Mbps	224 Mbps
64 QAM		67 Mbps	134 Mbps	192 Mbps	268 Mbps
128 QAM			156 Mbps	224 Mbps	313 Mbps
256 QAM			179 Mbps	256 Mbps	358 Mbps

* Throughput estimates based on Symbol Rate @ 88% of Channel Bandwidth and approximately 10% FEC overhead.

All specifications are typical values and subject to change without prior notice.