

Proteus AMT L-Series

6 to 38 GHz • 6 to 50 Mbps

Proteus AMT L-Series is a non-expandable, entry-level member of the Proteus family of adaptable and efficient point-to-point microwave radios. Proteus AMT L-Series is designed specifically for low-to-medium backhaul applications in Cellular, Enterprise, Utility, Public Safety, and Private LANs and WANs.

Its compact integrated design offers many user configuration options up to 16 x DS1, Ethernet IP, or a combination of both up to a total of 50 Mbps. With its robust modulation and coding, Proteus AMT L-Series delivers high system gain and unmatched signal discrimination in densely populated networks.

ANSI



Main Features

- Software selection of bandwidth, modulation, capacity, channel frequency, and output power.
- Available in Protected and Non-Protected hardware configurations.
- Maximum data throughput up to 50 Mbps.
- No plug-in modules required for any capacity or configuration upgrades.
- PDH capacity can be increased in 2 x DS1 increments up to 16 x DS1.
- Payload allocation can be mapped in combinations of DS1 and Ethernet up to the maximum link capacity (50 Mbps).
- ODUs and antennas are common across the entire Proteus AMT family.
- Built-in 2x100BaseT interface with integrated layer-2 Ethernet switch.
- Uses existing Proteus AMT Element Manager and Network Management System.
- Automatic Transmit Power Control (ATPC).

Microwave
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PROLSPEC-DE
Rev. 0606

System Specifications

Modulation	5 MHz		10 MHz		20 MHz		30 MHz	
	QPSK	8PSK	QPSK	8PSK	QPSK	8PSK	QPSK	8PSK
Maximum Data Configurations¹ (Mbps)								
PDH only	4DS1	8DS1	8DS1	16DS1	16DS1	N/A	N/A	N/A
Ethernet ¹	6.06	12.12	12.12	24.24	30.30	43.42	34.33	49.48
Ethernet + 2DS1	2.94	9.00	9.00	21.12	27.18	40.31	31.22	46.36
Ethernet + 4DS1	-	5.88	5.88	18.00	24.06	37.19	28.10	43.25
Ethernet + 8DS1	-	-	-	11.76	17.82	30.95	21.86	37.01
Ethernet + 12DS1	-	-	-	5.53	11.58	24.71	15.62	30.77
Ethernet + 16DS1	-	-	-	-	5.35	18.48	9.39	24.54
RX Threshold (10⁻⁶ BER) (dBm)								
6, 7, 8, 11, 13, 38 GHz	-90.5	-83.0	-87.5	-80.0	-85.0	-80.0	-83.5	-78.0
15, 18, 23, 26 GHz	-91.5	-84.0	-88.5	-81.0	-86.0	-81.0	-84.5	-79.0
TX Power (dBm)								
6, 7, 8 GHz	25.0	21.0	25.0	21.0	25.0	21.0	25.0	21.0
11, 13, 15, 18 GHz	24.0	20.0	24.0	20.0	24.0	20.0	24.0	20.0
23, 26 GHz	22.0	18.0	22.0	18.0	22.0	18.0	22.0	18.0
38 GHz	20.0	16.0	20.0	16.0	20.0	16.0	20.0	16.0
System Gain (dB)								
6, 7, 8, 15, 18 GHz	115.5	104.0	112.5	101.0	110.0	101.0	108.5	99.0
11, 13 GHz	114.5	103.0	111.5	100.0	109.0	100.0	107.5	98.0
23, 26 GHz	113.5	102.0	110.5	99.0	108.0	99.0	106.5	97.0
38 GHz	110.5	99.0	107.5	96.0	105.0	96.0	103.5	94.0
Emission Designator								
	5M00G7W	5M00G7W	10M0G7W	10M0G7W	20M0G7W	20M0G7W	27M5G7W	27M5G7W

Note: Typical data for non-protected radios subject to change. Please see www.microwavenetworks.com for the latest updates.

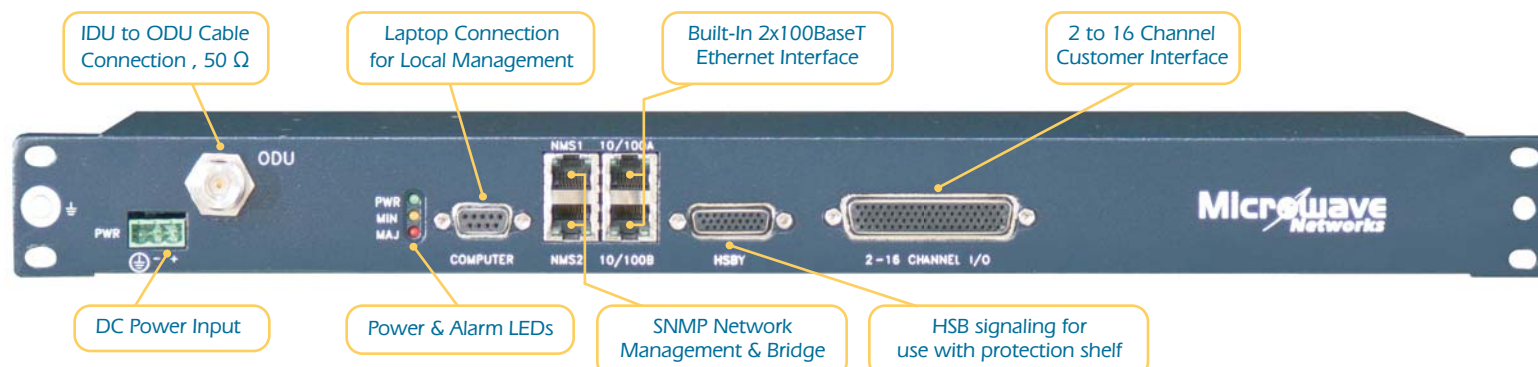
¹ Ethernet data rate using 1518-byte frames size.

Hot Standby Configuration

Proteus AMT L-Series can be configured as Hot Standby using an unequal-split waveguide coupler assembly. The following losses should be included when operating as HSB.

Hot-Standby Branching Loss

	Primary	Standby
Transmitter	1.9 dB	6.5 dB
Receiver	1.9 dB	6.5 dB



System Specifications

Operating Frequencies	T/R Spacing (MHz)
5.925 - 7.125 GHz	252, 340
7.125 - 7.900 GHz	154, 160, 161, 196
7.900 - 8.500 GHz	119, 126, 208, 266, 311.32
10.70 - 11.70 GHz	490, 500, 530
12.75 - 13.25 GHz	266
14.40 - 15.35 GHz	315, 420, 475, 490, 640, 644, 728
17.70 - 19.70 GHz	1008, 1010, 1560
21.20 - 23.60 GHz	1008, 1200, 1232
24.25 - 26.50 GHz	800, 1008
37.00 - 40.00 GHz	700, 1260
Frequency Stability	± 7 ppm (.0007 %)
RX overload	-15 dBm for < 10 ⁻⁶ BER
Residual BER	Better than 10 ⁻¹¹
Output Power Control	Manual or Automatic, 0-27 dB

Indoor Unit (IDU)

Mechanical & Environmental	
Dimensions (H x W x D)	1.75 in x 17 in x 11 in (1RU)
Weight	6.8 lbs
Temperature	23°F to 122°F (-5°C to +55°C)
Humidity	up to 95% non-condensing
Interface Parameters	
Digital Line Code	AMI or B8ZS
DS1 Line Rate	1.544 Mbps
DS1 Connector	DB-78 Connector, 100-ohm balanced
	ITU-G.703
DS1 specification	RJ-45 x 2 (switched), 100-ohm balanced
10/100BaseT Connector	IEEE 802.3, 802.3u
10/100BaseT Specification	
Input Power	
Standard Voltage	-36 to -60 volts DC
Optional Voltage	+19 to +28 volts DC
Power Consumption	<50 W non-protected; <105 W protected

Management

Physical Connections		Craft Terminal (VT100 or emulator)	Used to access Craft Terminal Interface for full control in text environment.
NMS1 and NMS2	2 x RJ-45 bridged connectors; 10 BaseT		
Computer	RS-232 serial DB9	User Access	TELNET access through NMS1 or NMS2 port; "Computer" port
Integral SNMP Agent		SNMP Network Manager	NMS Compatibility
	Internal 64 kbps channel used for radio management, control, and IP packet routing.		MNI's Element Management System (EMS), OpenView™, NetView™, SNMPc™, or other SNMP-based NMS
Management IP Routing	Standard IP routing over radio network using RIP2 and static routing	User Access	NMS1 and NMS2 ports
SNMP Element Manager (EM)		Security	3-level password protection
	Software provided by MNI typically runs on a laptop PC; Allows full control of radios in a graphical environment.	Remote Software Update	Flash upload via TFTP
User Access	NMS1 and NMS2 ports; "Computer" port		

Outdoor RF Unit and Antenna

Frequencies Configuration	6, 7, 8, 11, 13, 15, 18, 23, 26, 38 GHz
Dimensions	Split-mount; IDU inside and ODU outside
Weight	10 in diameter; 6 in deep
Temperature	10.9 lbs
Full Performance	-27.5°F to +131°F (-33°C to +55°C)
Operational	-67°F to +131°F (-55°C to +55°C)
Humidity	up to 100%
Altitude	15,000 Feet
Antenna Connection Options	Integrated or remote mounting
Antenna Diameter (ft)	1, 1.5, 2, 3, 4, 6

IDU to ODU Interface

ODU Connector Type	Coaxial N-type female
IDU Connector Type	Coaxial N-type female
Recommended Cable	Times Microwave LMR-400 or RG-8A/U equivalent; 50 Ohms
Max. IDU to ODU distance	850 ft
Intermediate Frequencies	
IDU to ODU	350 MHz
ODU to IDU	140 MHz

Standard Compliance

Safety	EN 60950
EMI/EMC	EN 301 489; EN 300 385; FCC Part 15
RF	EN 302 217-2
Power Supply	EN 300 132-2
Storage	ETS 300 019-1-1 (Class 1.1E)
Transport	ETS 300 019-1-2 (Class 2.1E)
Environmental - IDU	ETS 300 019-1-3 (Class 3.1E)
Environmental - ODU	Exceeds ETS 300 019-1-4 (Class 4.1E)