



M7LT L-Band Mesh Sat-Terminal

Modular Satellite Systems



SYSTEM ARCHITECTURES SUPPORTED

- SCPC Mesh
- Point-to-Multipoint
- Hybrid Mesh/PtMP

KEY FEATURES

- L-Band Frequency 950 to 2150 MHz
- IF 50 to 180 MHz Optional
- AC or DC Input Power Options
- Internal BUC and LNB Power Supply
- High Stability 10 MHz Reference
- FlexLDPC Multi Block Sizes & Code Rates
- Modulator:
 - 16 kbps to 75 Mbps, 1 bps steps
 - 32 ksps to 72 Msps, 1 sps steps
- Demodulator (Up to 16 RX Channels):
 - 80 MHz Center Frequency Bandwidth
 - 16 kbps 75 Mbps, Aggregate DR
 - 16 kbps to 75 Mbps, per RX Channel
 - 16 ksps to 72 Msps, Aggregate SR
 - 16 ksps to 72 Msps, per RX Channel
- BPSK/QPSK/8APSK/16QAM
- Widest Range of Carrier Roll-Off Factors
- Network Ethernet Interface
 - Layer 2 Bridge
 - 5-Port with additional SFP Port
 - QoS and VLAN Support
- Lowest Latency, <15 ms at 64 kbps $\frac{3}{4}$ QPSK
- Fast Carrier Acquisition
- MCC for Remote Communications, AUPC
- State-of-the-Art Web Browser GUI
- Local and Remote SNMP and Web Browser

APPLICATIONS

- Cellular Backhaul
- Enterprise
- IP Networks
- On-the-Move
- Bandwidth on Demand

Datum Systems gives you a modern and highly efficient low cost satellite Mesh Modem with the M7 Platform Series, that is versatile, compact, extremely bandwidth efficient and costs less to own and operate.

Compact Modular Design – The M7LT Mesh platform fits within a single 1 RU space, saving expensive rackspace at hub or remote locations. M7LT Mesh units can be mounted and operated stand-alone or used in a simple and clean 1:1 redundant configuration. The M7LT Mesh supports 1 transmit carrier with up to 16 individual receive carriers within a single 1RU space. The M7LT Mesh interfaces the 1 Modulator and 8 demodulators to the LAN using a single 5-port Gigabit Network Ethernet Interface. Additional M7D Multi-Demod extensions are available and easy to grow your Mesh network nodes.

FlexLDPC – Provides strong economic advantages to satellite service providers and their customers. Granular code rates and block sizes get you the most out of your available satellite bandwidth and spectral power, while keeping processing latency at the desired level.

Sharp Carrier – This standard Roll-off capability allows an immediate spectral efficiency increase and significant bandwidth savings, at no additional hardware or software cost. Filter Roll-Off options in the new M7 modems Series include 5%, 10%, 15%, 20%, 25%, 30% and 35%.

Network Ethernet Interface - Multi-port Ethernet Bridge interface (N7) provides Layer 2 connectivity with QoS and VLAN selectability.

1:1 Redundancy - Built in 1:1 redundancy control allows for low cost implementation of redundancy when required.

BUC and LNB Power Supply Options - Factory select Input Power and BUC/LNB Power and High Stability 10 MHz Reference



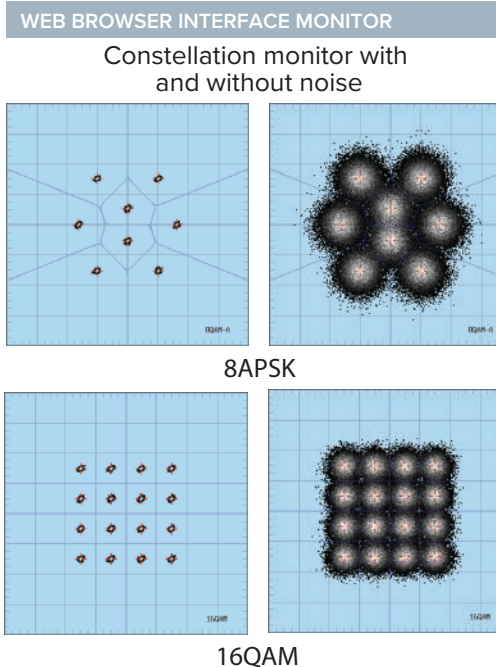
M7LT Mesh Rear Panel

SPECIFICATIONS	
Operating Modes	TX and RX SCPC and Mesh FlexLDPC, Flexible Block and Code Rates, Low Latency Remote MCC OH Channel, AUPC
Frequency Range	950 to 2150 MHz (1 Hz steps) Optional 50 to 180 MHz
Modulation Types	BPSK, QPSK, 8APSK, 16QAM
FEC (Block Sizes)	FlexLDPC 2k, 4k, 8k, 16k
Code Rates	BPSK: 1/2, 8/15, 4/7, 8/13, 2/3, 16/23, 8/11 QPSK: 1/2, 8/15, 4/7, 8/13, 2/3, 16/23, 8/11 16/21, 4/5, 16/19, 8/9 8APSK: 8/13, 2/3, 16/23 16QAM: 1/2, 8/15, 4/7, 8/13, 2/3, 16/23, 8/11 16/21, 4/5, 16/19, 8/9, 16/17
Scram/Descram	Sync/Async

MODULATOR	
Output Level	L-Band +5 to -35.00 (dBm)
Output Level Accuracy	±0.5 dB Over Freq, Lvl and Temp
Output Impedance	50 Ohm N-Type/75 Ohm F-Type (factory option)
Data Rate Range	16 kbps to 75 Mbps, (1 bps)
Symbol Rate Range	32 ksps to 72 Msps (1 sps)
Output Return Loss	> 16 dB
Output Spurious	< -60 dBc / 4 kHz BW
Output Off Isolation	> 60 dB
Phase Noise:	
Offset = 10 Hz	< -78 dBc/Hz
Offset = 100 Hz	< -95 dBc/Hz
Offset = 1.0 kHz	< -110 dBc/Hz
Offset = 10 kHz	< -110 dBc/Hz
Offset = 100 kHz	< -115 dBc/Hz
Offset = 1.0 MHz	< -130 dBc/Hz
Mod Roll-Off Factor %	5, 10, 15, 20, 25, 30, 35 (%)
Ext Ref Frequency	1,1544, 2,048, 5, 10, 20 (in MHz)
External Ref Level	-10 dBm to +10 dBm

MULTI-DEMODULATOR	
Input Bandwidth	80 MHz L-Band Carrier Range: 950 to 2250 MHz L-Band Center Freq: 986 to 2214 MHz
Receive Carriers	Up to 16
Symbol Rate Range	Per Demod: 16 ksps to 72 Msps (1 sps steps) Aggregate: 16 ksps to 72 Msps (1 sps steps)
Data Rate Range	Per Demod: 16 kbps to 75 Mbps (1 bps steps) Aggregate: 16 kps to 75 Mbps (1 bps steps)
Input Acquisition Range	±100 Hz to ±3 MHz, 1 Hz Steps
Minimum Input Level	10 x Log(SR) - 125 = Lvl (dBm)
Maximum Input Level	10 x Log(SR) - 80 = Lvl (dBm)
Max IF Rx Power Density	+20 dBc/Hz
Maximum Total Power	+10 dBm
Receive Acquisition Time	Typ 500 ms at 64 kbps, QPSK
Input Impedance	50 Ohms N-Type or 75 Ohms F-Type (factory option)
Input Return Loss	> 16dB
Input Phase Noise	> Intelsat by 6 dB typ, 4 dB min
Demod Roll-Off Factor %	5, 10, 15, 20, 25, 30, 35 (%)

TYP. ES/NO QEF (NON INCLUSIVE)				
FlexLDPC™	BPSK/QPSK (dB)	8APSK (dB)	16QAM (dB)	
LDPC-1/2-2k	2.04	-	4.48	
LDPC-1/2-16k	1.38	-	3.76	
LDPC-2/3-2k	2.77	4.68	5.85	
LDPC-2/3-16k	2.09	3.91	5.01	
LDPC-16/23-2k	3.15	5.10	-	
LDPC-16/23-16k	2.41	4.27	-	
LDPC-8/11-2k	3.52	-	-	
LDPC-8/11-16k	2.72	-	-	
LDPC-4/5-2k	-	-	7.66	
LDPC-4/5-16k	-	-	6.68	
LDPC-8/9-2k	5.63	-	9.37	
LDPC-8/9-16k	4.40	-	7.95	
LDPC-16/17-2k	-	-	10.14	
LDPC-16/17-16k	-	-	8.63	



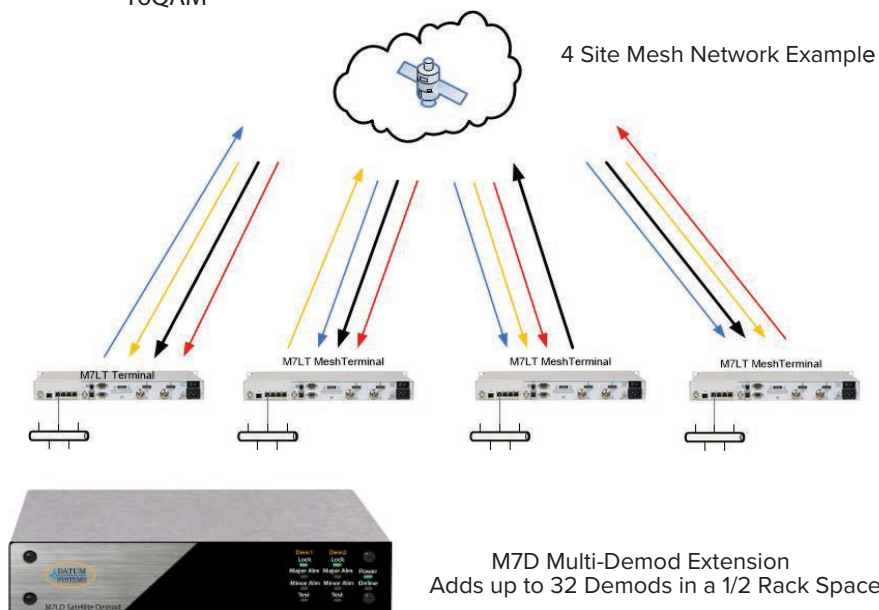
NETWORK ETHERNET INTERFACE (N7)	
Ethernet Ports	5 Ports (RJ-45), 1 Port SFP
5 Port Interface	10/100/1000 BaseT, Ethernet (RJ-45)
SFP Port	Optional Gigabit or Optic Fiber
Ethernet Protocol	Layer 2 Switched Bridge Only
Features	QoS and VLAN Selectable

MONITOR AND CONTROL	
Remote Control Interfaces	RS-232, RS-485, SNMP, Web Browser (Local and Remote)
Alarm Outputs	Qty 2 Form C

ENVIRONMENT AND PHYSICAL M7LT	
AC or DC Input (factory option)	90-264 VAC, Optional 48 VDC (20-60 VDC)
High Stability Ref Option	Internal 10 MHz at Nominal, +5 dBm (+/- 1 dB)
Reference Stability	1 x 10-8 OCXO, 2 x 10-7/year aging
BUC Power Options	AC Input Models: (Max Current Rating Listed) (1) 24 VDC@110 watts, 4.2A (2) 24 VDC@120 watts, 5.0A (3) 48 VDC@100 watts, 2.1A (4) 48 VDC@150 watts 3.125A (5) 48 VDC@240 watts 5A
LNB Output Power	Selectable: Off, 13 or 18 VDC
Operating Temp Range	0 to +50°C, 99% humidity, non-cond
Storage Temperature	-20°C to +70°C, 99% humidity, non-cond
Size	19" (W) x 11" (D) x 1.75" (H),
Weight	10 lbs, fully configured

CERTIFICATION AND COMPLIANCE	
CE Certified for:	ETSI EN 301 489-1 V1.9.2 EN50022 Emissions EN50024 Immunity EN60950 (Safety)
RoHS	Meets RoHS lead-free standards

* Specifications subject to change without notice



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