



M7D Satellite Multi-Demodulator

Modular Satellite Systems

SYSTEM ARCHITECTURES SUPPORTED

- Point-to-Point
- Point-to-Multipoint
- Mesh
- Multicast

KEY FEATURES

- Modular Multi-Demod Design
- IF and L-Band
- 32 Independent ACM Demodulators in 1/2 RU
- FlexLDPC Multi Block Sizes & Code Rates
- 2 Multi-Demod Cards (16 RX Channels each)
- 80 MHz Center Frequency Bandwidth each
- 16 kbps to 75 Mbps, Aggregate Data Rate
- 16 kbps to 75 Mbps, per RX Channel
- 16 ksps to 72 Msps, Aggregate Symbol rate
- 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, Switch Based
 - 5-Port with additional SFP Port
 - QoS and VLAN Support
- Fast Carrier Acquisition
- State-of-the-Art Web Browser GUI
- Remote SNMP and Web Browser

APPLICATIONS

- Cellular Backhaul
- Enterprise
- IP Networks
- E1 Trunking
- On-the-Move
- Bandwidth on Demand



M7D Multi-Demod



M7D Dual Multi-Demod

M7D Multi-Demodulator - The M7D is Datum's next generation Multi-Receiver for its M7 Datum Elements Hub solution. The M7D supports highly efficient and flexible SCPC based return channels using Datum's industry-leading FlexLDPC coding. The high capacity and smaller footprint of the M7D drastically lowers the cost and space required at the hub for traditional FSS and high throughput satellite (HTS) operators. The M7D is a significant addition to the Elements platform used in Point-to-Multipoint and Mesh Network applications.

Compact Modular Design – The completely new M7D platform fits within a half-rack 1 RU space, saving expensive rackspace at hub or remote locations. M7D units can be mounted and operated side-by-side or used in a simple and clean 1:1 redundant configuration. The M7D supports up to 32 individual Receive Channels within a single half-rack wide space and up to 64 individual Receive Channels within a single rack space. The M7D interfaces the 32 RX Channels to the LAN using a single 5-port 10/100/1000 Base-T Gigabit Ethernet Switch Interface.

ACM - Adaptive Coding Modulation provides a significant increase in throughput by utilizing margin provided in link budgets for worst case scenarios. ACM also increases link availability as the link will adjust for poor link conditions by seamlessly adjusting it's available Modcods.

FlexLDPC Onboard – With unparalleled configuration flexibility and superior coding gain, FlexLDPC takes FEC technology innovation to the next level, bringing 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 Roll-Off Technology – The M7 Series supports advanced filter shaping for optimized carrier spacing as a standard feature. Datum currently

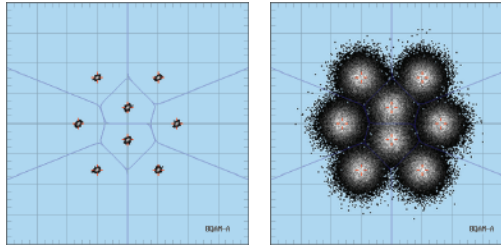


Half-Rack M7D (32 RX Channel Multi-Demod)

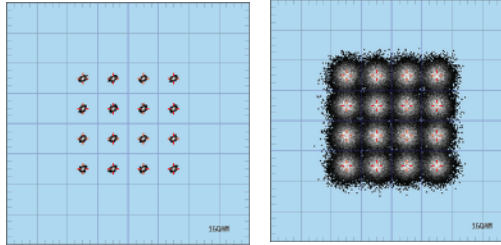
SPECIFICATIONS	
Operating Modes	RX Continuous (SCPC) FlexLDPC, Flexible Blk & Code Rates ACM, AUPC
Center Freq BW	80 MHz per Demod Card (160 MHz Ttl)
Symbol Rate Range	Per Demod: 16 ksp/s to 72 Msps (1 sps steps) Aggregate: 16 ksp/s to 72 Msps (1 sps steps)
Data Rate Range	Per Demod: 16 kbps to 75 Mbps (1 bps steps) Aggregate: 16 kps to 75 Mbps (1 bps steps)
Freq Tuning Range	IF = 50-180 MHz (1 Hz steps) L-band = 950-2250 MHz (1 Hz steps)
Demodulation Types	BPSK, QPSK, 8APSK, 16QAM
FlexLDPC Blk Sizes	FlexLDPC 2k, 4k, 8k, 16k 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/Descrambler	Sync/Async

DEMODULATOR (RX CHANNELS)	
Input Bandwidth	80 MHz (per Demod Card) IF Carrier Range: 50 to 180 MHz IF Center Freq: 86 to 164 MHz L-Band Carrier Range: 950 to 2250 MHz L-Band Center Freq: 986 to 2214 MHz
Recieve Carriers	Up to 32 per 1/2 RU
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 Input Power Density	+20 dBc/Hz
Maximum Total Power	+10 dBm
Receive Acquisition Time	Typical 500 ms at 64 kbps, QPSK
Input Impedance	IF and L-Band, 50 Ohms SMA (f)
Input Return Loss	IF or L-Band > 16dB
Input Phase Noise	> Intelsat by 6 dB typical, 4 dB min
Demod Roll-Off Factor %	5, 10, 15, 20, 25, 30, 35 (%)

M7D Constellation monitor with and without noise



8APSK



TYPICAL 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)	
Network Ethernet Ports	5Ports (RJ-45), 1 Port SFP
4 Port Interface	10/100 BaseT, Gig 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
Alarm Outputs	Qty 2 Form C

ENVIRONMENTAL AND PHYSICAL	
AC to DC Adapter (Std)	Input 100-240 VAC, Output 24 V 65 W max
DC Input (Rear of Unit)	8 to 36 VDC, -48 VDC Optional
Operating Temperature Range	0°C to 50°C, 99% humidity, non-con
Storage Temperature	-20°C to +70°C, 99% humidity, non-con
Size	8.5" (W) x 11" (D) x 1.75" (H), (2 Units in 1 RU)
Weight	< 5 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

OTHER M7 ELEMENTS PRODUCTS



M7 Modulator



M7LT Remote Modem