

M7D IF and L-Band Compact Satellite Dual-Demods Modular Satellite Demodulators

SYSTEM ARCHITECTURES SUPPORTED

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

KEY FEATURES

- Modular Dual-Demod Design
- FlexLDPC Multi Block Sizes & Code Rates
- 1.2 kbps to 59.4 Mbps, 1 bps steps
- BPSK/QPSK/OQPSK/8PSK/8QAM/16QAM
- Independent Demods, IF or L-Band
- Serial Interface Optional
- Advanced IP Interface
 - 70,000 Packet Per Seconds Throughput
 - Bridge and Router Modes
 - Integrated Linux and Vyatta Routing
- Express Ethernet Interface
 - Layer 2 Bridge, Switch Based
 - 4-Port with additional SFP Port
 - QoS and VLAN Support
- Lowest Latency Solution
- Typical acquisition time, 71 ms at 64 kbps
- Perfect for Managed BW Systems
- Front Panel Optional
- State-of-the-Art Web Browser GUI
- Local and Remote SNMP and Web Browser

APPLICATIONS

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



M7D Dual Demod



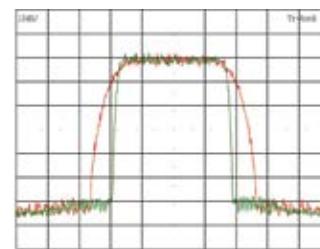
M7D Quad Demod

Datum Systems innovation is transforming the SCPC and MCPC modem industry with a new generation modular modem product, the M7 Series, that is versatile, compact, highly efficient and costs less to own and operate. Flexible M7 configurations include a full modem, mod-only, demod-only or multi-demod capability, all using common integrated assembly modules. Standard hardware houses our optional FlexLDPC FEC and many other advanced upgradable features to create the industry's most spectral and space efficient low cost modem.

Compact Modular Design – The completely new M7D and M7LD Dual-Demod platform fits within a half-rack 1 RU space, saving expensive rackspace at hub or remote locations. Demods can be mounted and operated side-by-side or used in a simple and clean 1:1 redundant configuration. The M7 Series Dual-Demod uses fully independent demod assemblies, which are not restricted by bandwidth allocation or single transponder requirements. The M7D and M7LD also supports multiple interface options, making it a true flexible and multipurpose demod-only platform.

Advanced 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 offers down to an 5% Alpha, which means that carriers can be spaced at 1.05 times the symbol rate instead of the historical factor of 1.35. This 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%, 8%, 10%, 15%, 20%, 25%, 30%, 35% and 40%.



Sharp Carrier Example
Roll-Off 8% vs. 35%

*See Advanced Filter Shaping White Paper for more information.

SPECIFICATIONS		TYPICAL EB/NO 1E-8 BER						SERIAL DATA INTERFACE (S7)	
Operating Mode	RX Continuous (SCPC)	FlexLDPC™	BPSK/QPSK (dB)	8PSK (dB)	8QAM (dB)	16QAM (dB)	Delay @ 64kbps (mSec)	Main Interface Modes	Sync RS-232, 449, V.35, EIA-530 (DB-25)
	FlexLDPC, Flexible Block and Code Rates, Low Latency	LDPC-1/2-2k	2.04	n/a	3.80	4.48	49.6	Int Clk (ST) Accuracy	±1E-12, (±1 part per Trillion)
	Advanced TPC & Industry Comp	LDPC-1/2-16k	1.38	n/a	3.04	3.76	388.6	Doppler Buffer Depth	4 Bits to 524,284 Bits, 1 Bit Steps
	Std and Custom Async Low Overhead Channels	LDPC-2/3-2k	2.77	4.88	4.68	5.85	44.4	ESC OH I/O Modes	Async RS-232, RS-485 (DB-25)
	AUPC	LDPC-2/3-16k	2.09	4.14	3.91	5.01	346.1	Adv Mux ESC OH DR	Disabled, 300 bps to 3.5 Mbps, 1 bps Steps
	Remote Modem Control Channel	LDPC-3/4-2k	3.52	5.97	5.51	6.78	41.9	Adv Mux MCC OH DR	Disabled, 300 bps to 29.52 Mbps, 1 bps Steps
	IP, Ethernet, Dual G.703/E1 (D&I), Serial, HSSI	LDPC-3/4-16k	2.72	5.07	4.63	5.87	325.0	ESC Rem Signaling I/O	Form C (Qty 2)
	Opt Plug-in I/O Selections (Up to 2 per M7 Unit)	LDPC-14/17-2k	4.23	6.92	6.27	7.66	39.6		
	1.2 kbps to 59.04 Mbps, (1 bps steps)	LDPC-14/17-16k	3.27	5.86	5.24	6.68	306.3		
	2400 sps to 14.76 Msps (1 sps steps)	LDPC-7/8-2k	4.96	7.89	6.98	8.48	381		
Symbol Rate Range	IF: 50-180 MHz (1 Hz Steps)	LDPC-7/8-16k	3.90	6.66	5.87	7.32	293.6		
	L-Band: 950-2150 MHz (1 Hz Steps)	LDPC-10/11-2k	5.63	8.73	7.68	9.37	37.0		
Freq Tuning Range	BPSK,QPSK,OQPSK,8PSK, 8QAM,16QAM	LDPC-10/11-16k	4.40	7.33	6.35	7.95	284.5		
		LDPC-16/17-2k	6.35	9.53	8.39	10.14	35.8		
FEC Options		LDPC-16/17-16k	7.99	8.01	6.99	8.63	276.1		
	None	* Guaranteed Eb/No is 0.2 dB > Typical							
	Advanced FlexLDPC	8QAM							
	Blk Sizes 256,512,1k,2k,4k,8k,16k								
	Rate 1/2,2/3,3/4,14/17,7,8,10,11,16/17								
	Viterbi (k=7)								
	Rate 1/2,3/4,7/8								
	Trellis-Coded Modulation								
	Rate 2/3								
	Reed Solomon								
Demodulator	Select N & K, IESS 308/309/310								
	Turbo Product Code								
Descrambler	TPC 4k and TPC 16k (Opt HW)								
	TPC-4k 21/44, 1/2, 3/4, 7/8, 0.950								
DEMODULATOR		M7D Constellation monitor with and without noise						MONITOR AND CONTROL	
Input Acq Range	±100 Hz to ±3 MHz, 1 Hz Steps							Remote Control Interfaces	RS-232, RS-485, SNMP, Web Browser
Minimum Input Level	10 x Log(SR) - 80 = Lvl (dBm)							Alarm Outputs	Qty 2 Form C
Maximum Input Level	10 x Log(SR) - 125 = Lvl (dBm)								
Max IF In Pwr Density	+20 dBc/Hz								
Maximum Total Power	+10 dBm								
Demod Acq Time	Typical 71 ms at 64 kbps, QPSK								
Input Impedance	L-Band 50 Ohms SMA								
	IF 50 or 75 Ohms BNC (User Selectable)								
Input Return Loss	IF > 20 dB, L-Band > 16dB								
Input Phase Noise	> Intelsat by 6 dB typical, 4 dB min								
Demod Roll-Off Factor %	5, 8, 10, 15, 20, 25, 30, 35, 40 (%)								
Spectrum Analyzer		Spectrum Analyzer						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 Temp Range	0°C to 50°C, 99% humidity, non-con
								Storage Temp Range	-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:								CE	ETSI EN 301 489-1 V1.9.2 EN50022 Emissions EN50024 Immunity EN60950 (Safety) Meets RoHS lead-free standards
RoHS									

* Specifications subject to change without notice



Half-Rack M7D
(with Serial Interface)



Half-Rack M7D
(with Express Ethernet Interface)