

HIGHLIGHTS

- Two-bay chassis supports a variety of options
- Ability to modulate one to six multistream transport streams on a single carrier (single-box multistream solution)
- L-band and IF outputs
- L-band monitoring output
- Optional diplexed 10 MHz and DC power on L-band
- ASI and IP inputs
- Front panel and web GUI for easy configuration
- Dual, redundant power supplies as standard



The Harmonic SMD 9200 DVB-S/S2 professional modulator is ideal for single- or multi-stream MPEG Transport Stream modulation. Leveraging the latest modulation technology, the SMD provides a high-value solution with unmatched signal quality.

Multistream support with Variable Coding and Modulation (VCM) ensures the SMD 9200 will be ready for the future of S2 modulation. A complete web GUI makes it easy to use.

The optional, built-in L-band upconverter enables the SMD 9200 to provide an IF or L-band output. This eliminates the need for multiple pieces of equipment and provides a compact solution for facilities housing multiple modulators or for insertion into L-band inter-facility links.

The SMD 9200 chassis has two bays, allowing for a variety of configurations, including two independent modulators for dense applications or DC BUC power for portable solutions.

APPLICATIONS

News Gathering
<ul style="list-style-type: none"> • Quick to boot, easy-to-use, robust platform • Support for stored presets • Support for up-and-coming advanced modulation features (multistream, VCM, 16APSK/32APSK)
Uplink Facility Deployment
<ul style="list-style-type: none"> • State-of-the-art S2 modulation technology • Unmatched MER and PCR restamp accuracy • Dual, redundant power supplies as standard • High modulation efficiency with 8/16/32APSK modes • Full control and monitoring via SNMP
Advanced Modulation/Retransmission Use Cases
<ul style="list-style-type: none"> • Support for up to six streams of multistream transmission • VCM mode for variable-level protection • Higher-order modulation for high-throughput signals



INPUTS

SWITCHING

Automatic failover and fallback between any two inputs
Triggered on transport stream sync loss

ASI

Connector	Four BNC
Impedance	75 Ω
Packet Format	Auto detect 188/204 byte
TS Bitrate	0.5-160 Mbps

IP

Capacity	Six Transport Streams
Ports	1 GbE port
Connector Type:	RJ45 10/100/1000 - auto negotiating
Input Format	UDP or RTP
IP Encapsulation	1-7 TS packets per IP packet
Addressing	Unicast and Multicast
IGMP Compatibility	Version 1, 2 and 3
Per TS Bitrate	0.5-160 Mbps

REFERENCE

External Reference Input	10 Mhz/50 Ω BNC
Reference Input Return Loss	>15 dB
Reference Input Level	-3 dBm to 7 dBm
Internal Reference	Ovenized internal 10 MHz oscillator
Reference Output Source	Internal or reconditioned external
Reference Output Level	+5 dBm
Reference Output Return Loss	>25 dB

MODULATION

DVB-S/DSNG	
Modulation Format & FEC Rate:	QPSK: 1/2, 2/3, 3/4, 5/6, 7/8 8PSK: 2/3, 5/6, 8/9 16 QAM: 3/4, 7/8
Baud Rate Range	0.5 - 45 Mbaud
Roll-Off Factor	0.20, 0.25, 0.30
Spectral Inversion	On / Off
DVB-S2	
Signal Format	CCM / VCM
Modulation Format & FEC Rate:	QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10** 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10** 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10** 32APSK: 3/4, 4/5, 5/6, 8/9, 9/10** <i>**9/10 not applicable for short frames</i>
Baud Rate Range	0.5 - 45 Mbaud
Roll-Off Factor	0.20, 0.25, 0.30
Multi Stream Support	1-6 transport streams per output
Spectral Inversion	On/Off
FEC Frames	Normal (64,800) / Short (16,200)

OUTPUTS

IF OUTPUT

Frequency	57-140 MHz (1 Hz steps)				
Level	-30 dBm to -5 dBm (1 dB steps)				
Connector	75 Ω BNC				
Return Loss	>20 dB				
Spurious Signal Level	-55 dBc @ -10 dBm				
Phase Noise/Internal Reference (typical dBc/Hz @ 70/140 MHz):					
10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz
-65 dBc	-75 dBc	-85 dBc	-90 dBc	-90 dBc	-115 dBc

L-BAND OUTPUT

Frequency	950-2150 MHz (1 KHz steps)				
Level	-30 dBm to 5 dBm (0.1 dB steps)				
Connector	50Ω SMA				
Return Loss	>15 dB				
Monitoring Output	-20 dBc @ main frequency				
Spurious Signal Level	-55 dBc @ -10 dBm				
Phase Noise/Internal Reference (typical dBc/Hz @ 950-1750 MHz):					
10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz
-65 dBc	-75 dBc	-85 dBc	-90 dBc	-90 dBc	-115 dBc

DIPLEXED L-BAND OUTPUT

Connector	50 Ω SMA
Reference on L-Band	10 MHz
Reference Source	Internal or external (auto detect)
Reference Level	+5 dBm
DC Power on L-Band	24 VDC @ 3.1 A (optional) 48 VDC @ 1.6 A (optional)
DC Power Source	Integrated or external supply
DC Power Control	On/Off switching (internal supply)

MANAGEMENT

Connector	RJ45 10/100 - auto negotiating
Protocols	HTTP and SNMP
User Interfaces	Full control via web GUI Full control via front panel
Automation Interfaces	Full status and control via SNMP Configurable SNMP traps Web services access to main GUI
Contact Closure Alarms	Two form C relays
Connector	9-pin sub-D female
Alarms Supported	User configurable to any alarm(s)

DIMENSIONS/POWER

Height	1.75 in/5 cm (1 RU)
Width	17.4 in/44.2 cm
Depth	23 in/58 cm
Power	100-240 AC 50/60 Hz @ 3 A
Supply Type	Integrated supply (standard) Dual, hot-swappable, redundant load sharing supplies (optional)

ENVIRONMENTAL CONDITIONS

Operating Temp	0° to 45°C
Storage Temp	-40°C to 65°C
Relative Operating Humidity	<95% (non-condensing)

