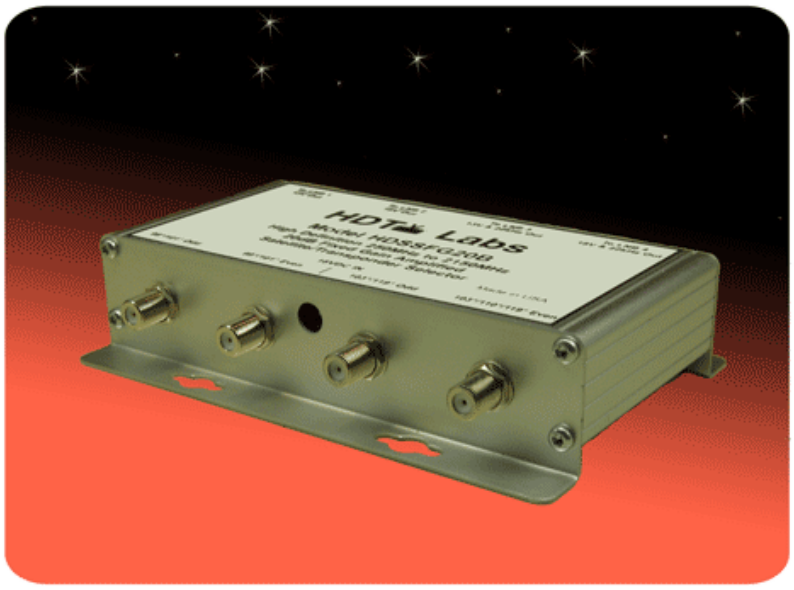
HDTV Labs

20dB Fixed Gain Satellite Selector for DIRECTV

Model HDSSFG20B
Instruction Manual



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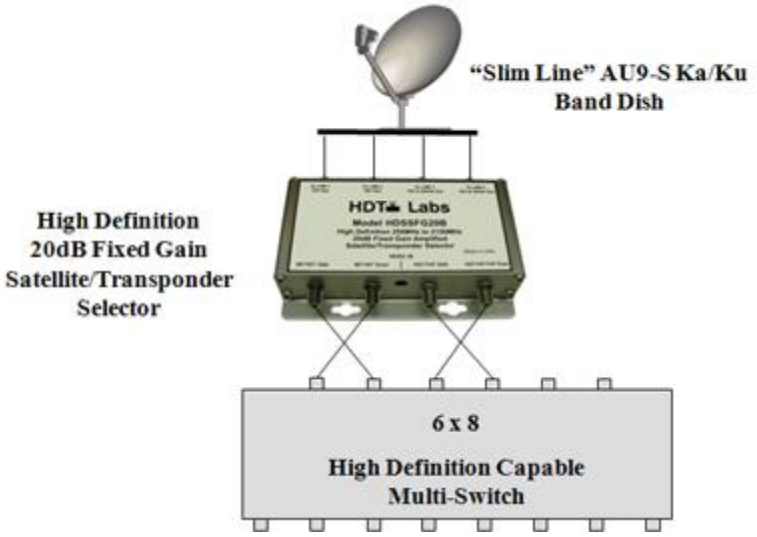

Multi-Switch Connection Instructions

Caution: Ensure all cables and connectors have no short circuits. Make all cable connections before energizing the power supply connection or damage to the unit could occur.

1. Using High Definition RG-6 coaxial cable for all connections, attach any of the four "Slim Line" Dish outputs to any of the four Satellite Selector inputs.
2. Connect the 99°/101° Odd Satellite Selector output to the Sat 99°/101° 13V Multi-Switch input.
3. Connect the 99°/101° Even Satellite Selector output to the Sat 99°/101° 18V Multi-Switch input.
4. Connect the 103°/119° Odd Satellite Selector output to the Sat 103°/110°/119° 13V 22kHz Multi-Switch input.
5. Connect the 103°/110°/119° Even Satellite Selector output to the Sat 103°/110°/119° 18V 22kHz Multi-Switch input.
6. Connect the external power supply to the Satellite Selector "18VDC IN" jack.
7. Check our website at www.hdtvlabs.tv for the latest instruction manual updates. This is HDSSFG20B Rev.1.1

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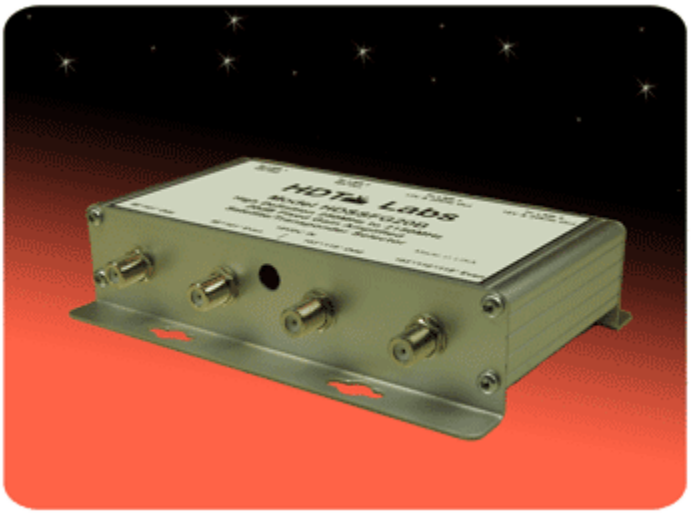
Model HDSSFG20B

High Definition 20dB Fixed Gain Satellite/Transponder Selector



Description

The HDSSFG20B is a Professional-Grade 4-channel fixed 20dB gain satellite/transponder selector designed to work with DIRECTV 5 LNB dish antennas. The HDSSFG20B selects and amplifies even and odd transponder signals from satellites 99°, 101°, 103°, 110°, and 119°. Each channel has a gain in excess of 20dB and covers a frequency range of 250MHz to 2150MHz. The amplifier is designed to recover low-level signals that may be well below the threshold of most satellite power meters. The HDSSFG20 is used in conjunction with residential, stacked, multiswitch, and head-end systems. **MADE IN USA**

Features:

- Wide signal dynamic range capability
- Ultra-low level signal recovery
- Integrated voltage regulators and tone generators
- Corrosion-resistant connectors
- Rugged aluminum construction

Specification	**Minimum**	**Typical**	**Maximum**
Frequency	250MHz		2150MHz
Noise Figure		3.5dB	
Absolute Maximum Total Input Power[1]			0dBm
Input Power Range	-75dBm[2]		-20dBm[3]
Individual Transponder Maximum Output Power		0dBm	
Gain			
at 250MHz	15.5dB	16.5dB	17.5dB
at 750MHz	17.0dB	18.0dB	19.0dB
at 950MHz	17.5dB	18.5dB	19.5dB
at 1450MHz	18.5dB	19.5dB	20.5dB
at 1650MHz	19.0dB	20.0dB	21.0dB
at 2150MHz	19.0dB	20.0dB	21.0dB
Channel-to-Channel Isolation[4]		45dB	

Specification	Minimum	Typical	Maximum
Input Return Loss			
at 250MHz…….		10dB	
at 950MHz…….		25dB	
at 1450MHz……...		15dB	
at 2150MHz……...		11dB	
Output Return Loss			
at 250MHz…….		14dB	
at 950MHz…….		16dB	
at 1450MHz……...		20dB	
at 2150MHz……...		11dB	
1dB Input Gain Compression Point[5]			
at 250MHz……..		-5dBm	
at 950MHz……..		-5dBm	
at 1450MHz……		-5dBm	
at 2150MHz……..……..		-7dBm	
Input Signal Power for 3rd Order Intermod Rejection Ratio of 40dB[6]			
at 250MHz……..		-10dBm	
at 950MHz……..		-13dBm	
at 1450MHz……		-15dBm	
at 2150MHz……..……..		-17dBm	
DC Supply Voltage……...		18VDC	20VDC
DC Supply Current……		1.0A	1.5A
99°/101° Odd Transponder LNB Voltage…….	12.5VDC	13.75VDC	14.5VDC
99°/101° Even Transponder LNB Voltage…….	17.0VDC	18.00VDC	20.0VDC
103°/119° Odd Transponder LNB Voltage……	12.5VDC	13.75VDC	14.5VDC
103°/110°/119° Even Transponder LNB Voltage…….	17.0VDC	18.00VDC	20.0VDC
22kHz Tone Generator Frequency…….		22kHz	
22kHz Tone Generator Amplitude…….	0.3Vp-p	0.4Vp-p	

For Indoor Use Only. The HDSSFG20B is supplied with an external 18VDC power supply. Operating temperature of the HDSSFG20B is –40°C to +85°C. The mechanical dimensions are 6.4”W × 4.4”L × 1.5”H. (Specifications subject to change without notice.)

Notes:

1. Absolute Maximum Power is the total power that arrives at the amplifier input from 250MHz to 2150MHz. Satellite power meters typically read the power level of a single transponder at a time. If all transponders are active from 250MHz to 2150MHz and the power of all transponders are equal, then total available input power across the 250MHz to 2150MHz bandwidth is approximated by taking the satellite power meter reading at 1450MHz and adding 20dB. Make sure not to exceed -20dBm as measured with a satellite power meter at 1450MHz.
2. The –75dBm level assumes that the overall system noise figure is not too high such that the carrier-to-noise ratio of the satellite signal has not been degraded such that signal recovery is not possible. Signal levels lower than –75dBm can be recovered with properly designed systems having over-all low system noise figures. Low noise figure systems are achieved by avoiding the addition of too many attenuators or too much loss in front of an amplifier block. It is always better to add loss after an amplifier to minimize system noise figure as long as the signal at the amplifier input does not over-drive that amplifier.
3. Assumes maximum power levels as measured with a satellite power meter and all transponder signals active from 250MHz to 2150MHz. (See note 1) A frequency response loss slope of 5dB is assumed, i.e. transponder power measured at 250MHz with a satellite power meter is 5dB higher than power measured at 2150MHz due to cable loss versus frequency characteristics. If transponder power levels are equal, limit the maximum power to –20Bm at all frequencies. An easy method to determine if the amplifier is being over-driven is to connect a satellite power meter to the output of the amplifier and check C/N, BER, and IRD performance. If acceptable transponder power levels are measured but low C/N values, high BER values, and low IRD levels are measured, reduce the input level into the amplifier until good C/N, BER, and IRD results are measured.
4. Channel-to-Channel Isolation is measured referenced to the output of each amplifier. Channel-to-Channel Isolation has a typical value of 35dB at 2150MHz.
5. Measured using a single CW signal. No transponder signals present.
6. Measured using two CW signals with 1MHz spacing. No transponder signals present.

