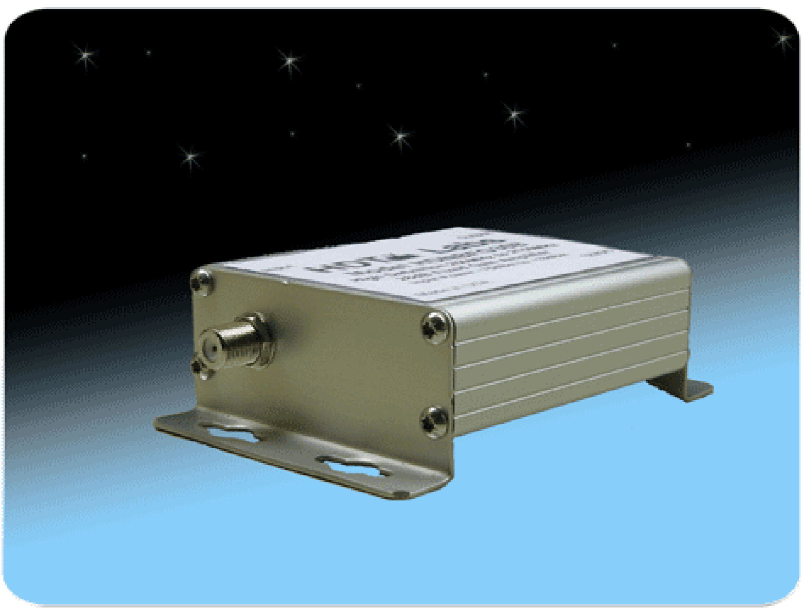
HDTV Labs

28 dB Fixed Gain Narrowband Amplifier

Model HDNBFG30B



www.hdtvlabs.tv

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Model HDNBFG30B

High Definition
28 dB Fixed Gain
250MHz - 2150MHz Amplifier

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 amplifier input and output to corresponding devices.

2. Connect the external power supply to the amplifier "12VDC" jack.

3. Built-in DC blocking capacitors eliminate the need for any external capacitors.

4. The input signal level to this amplifier is only -75 dBm as compared to a typical -35 or -40 dBm level for existing amplifiers. With the exceptionally wide signal level input range of -75dBm to -18dBm, installers can connect very weak input signals as well as having a much lower risk of overdriving the amplifier.

5. If poor C/N ratio is seen at the output of the amplifier, it is being overdriven and the installer must reduce the input power for it to work correctly. Proper output signal should be checked with a meter to prevent overdriving the amplifier.

6. Check our website at www.hdtvlabs.tv for the latest instruction manual updates. This is HDNBFG30B Rev. 1.1

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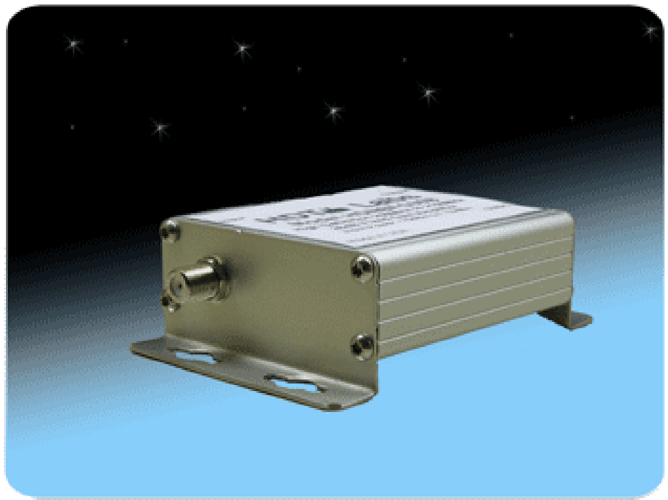
Model HDNBFG30B

High Definition 250MHz to 2150MHz
28dB Fixed Gain
High Compression Point Amplifier



Description

The HDNBFG30B is a Professional-Grade 28dB fixed gain high compression point amplifier designed to recover low-level signals that may be well below the threshold of most satellite power meters. The amplifier has a fixed gain of 28dB with 10dB slope compensation and covers a frequency range of 250MHz to 2150MHz. The HDNBFG30B is used to overcome cable, splitter, tap, and other system losses. The input and output of the amplifier has internal DC blocking capacitors, thus eliminating the need to add external DC blocking capacitors. **MADE IN USA**

Features:

- Wide signal dynamic range capability
- High signal drive level
- Ultra-low level signal recovery
- Corrosion-resistant connectors
- Rugged aluminum construction

Specification	**Minimum**	**Typical**	**Maximum**
Frequency…………………………………………………….	250MHz		2150MHz
Noise Figure…………...…………………………………..		5dB	6dB
Absolute Maximum Total Input Power[1]…………………..			5dBm
Input Power Range…………………………………………….	-75dBm[2]		-18dBm[3]
Individual Transponder Output Power………………………….		10dBm	
Gain			
at 250MHz..…………………………………...	17.5dB	19.0dB	20.5dB
at 950MHz…………………………………….	21.5dB	23.0dB	24.5dB
at 1450MHz…………………………………...	23.5dB	25.0dB	26.5dB
at 2150MHz..………………………………….	26.0dB	27.5dB	29.0dB

Specification	Minimum	Typical	Maximum
Input Return Loss			
at 250MHz……………………………………...		18dB	
at 950MHz…………………………………….		18dB	
at 1450MHz…………………………………...		16dB	
at 2150MHz………………………………….		20dB	
Output Return Loss			
at 250MHz……………………………………...		25dB	
at 950MHz…………………………………….		12dB	
at 1450MHz…………………………………...		25dB	
at 2150MHz………………………………….		21dB	
1dB Input Gain Compression Point[4]			
at 250MHz……………………………………..		-1dBm	
at 950MHz……………………………………..		-5dBm	
at 1450MHz……………………………………		-6dBm	
at 2150MHz……………………………………		-8dBm	
Input Signal Power for 3rd Order Intermod Rejection Ratio of 40dB[5]			
at 250MHz……………………………………..		0dBm	
at 950MHz……………………………………..		-8dBm	
at 1450MHz……………………………………		-15dBm	
at 2150MHz……………………………………		-16dBm	
DC Supply Voltage ……………………………………….			12VDC
DC Supply Current……………………………………...			200mA

For Indoor Use Only. The HDNBFG30B is supplied with an external 12VDC power supply. Operating temperature of the HDNBFG30B is –40°C to +85°C. The mechanical dimensions are 4.6"W x 3.1"L × 1.4"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.
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 10dB from 250MHz to 2150MHz is assumed, i.e. transponder power measured at 250MHz with a satellite power meter is higher than power measured at 2150MHz due to cable loss versus frequency characteristics. If all transponder power levels are approximately equal, limit the maximum power to –18dBm 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. Measured using a single CW signal. No transponder signals present.
5. Measured using two CW signals with 1MHz spacing. No transponder signals present.