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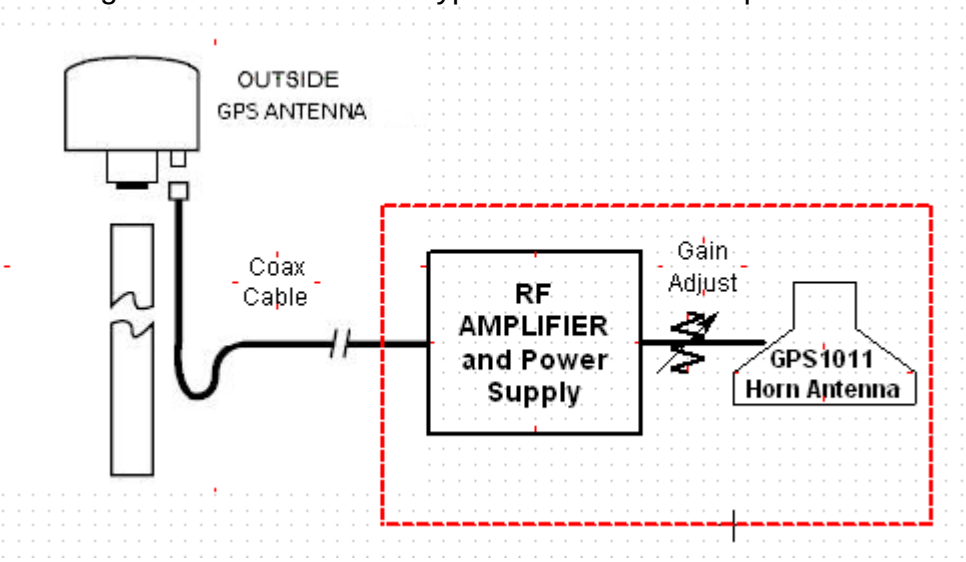
GPSL1RK - GPS Signal Re-Radiating Kit

The GPS Re-radiator Kit comes standard with a 110 volt to 5 volt power supply for operation of the amplifier and is also available to feed a standard external GPS antenna with a 5 volt LNA. We supply the variable gain version of the amplifier, also as standard. Having the variable gain adjustment allows setting the overall system gain to somewhere between 20 to 50 dB. Always adjust the gain to the minimum level needed for the work being done. Any setting over that amount could end up causing interference to other GPS systems that might be in the nearby area.

The female TNC coax connector on the amplifier is where the external GPS signal from an outside GPS antenna or other GPS signal distribution system is connected. As mentioned above, 5 volts is present on the center pin of the TNC connector used to feed an antenna requiring power (active GPS antenna). If your antenna or GPS distribution system does not require this power, be sure to use a DC blocking connector at this point. DC blocking connectors are available from GPS Creations if you do not have one. The block diagram below shows the typical GPSL1RK setup.



GPSL1RK System Configuration Setup

The coax cable and outside GPS antenna are not included with the GPSL1RK. The recommended coax cable is either LM240 or LM400. The dB loss per 100 feet of length must be calculated for each installation. See table 1 for this information. Allow an additional 1.0 dB loss for the connectors at each end (0.5 dB each).

Coax Cable Loss per 100 feet length @ 1575 MHz (GPS)	
RG240	10.21 dB
RG400	5.3 dB

Table 1 – Coax Losses

RG240 may be used for lengths under 100 feet and type RG400 must be used for lengths longer than 100 feet. With our standard GPS-L1 antenna, the typical gain of this antenna is 33 dB. An example installation would be as follows shown in table 2:

Example of Loss Calculations	
Item	Gain
Outside GPS Antenna GPSL1	33 dB
100 feet LMR240 Coax Cable w/ connectors (Loss)	(-11.21 dB)
Net Gain at GPS Re-radiator	21.79
GPSL1RK	20 – 50 dB

Table 2 – Gain/Loss Calculation

It is best to end up with somewhere around 20 dB gain at the input of the GPS re-radiator. And as mentioned earlier, we only sell the variable gain version of re-radiator to permit the user a method of controlling the gain to cover only the needed area of coverage and no more than that! For best results, we recommend not installing a system with more than 200 feet of coax (either type above) without an “in-line” amplifier. If an “in-line” amplifier is required, please contact GPS Creations to discuss your particular installation requirements.

The standard GPS signal re-radiator kit we supply is designed for the L1 frequency band of GPS satellite signals. The part number for this model is: GPSL1RK. GPS Creations can also supply models for L1/L2 operation. Please contact us if you require additional information.

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