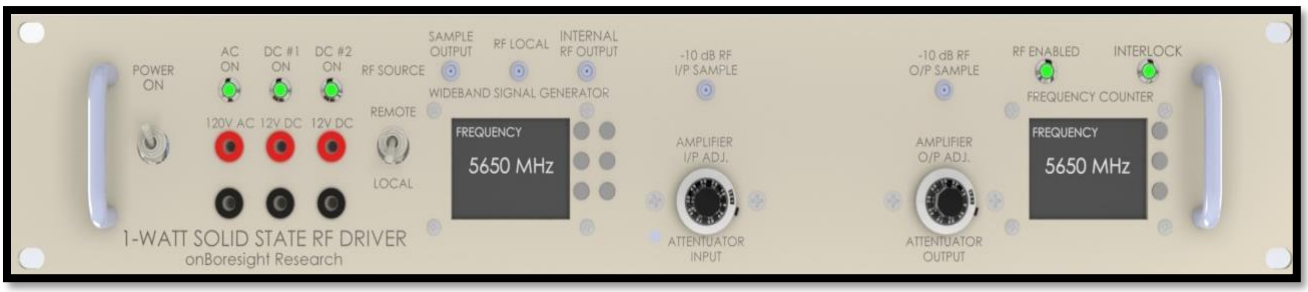
onBoresight Research
SCIENCE, TECHNOLOGY, INNOVATION
info@onboresighteng.com § www.onboresighteng.com § 808 378 4212
2970 Haleko Road, Suite #105, Lihue, HI 96766

1- WATT SOLID-STATE RF DRIVER



The solid-state RF driver is a rackmount power amplifier that intensifies small sinusoidal signals to a 1-Watt power level. The amplitude of the RF signal is precisely controlled to improve the magnitude characteristics while outputting the desired power level. It utilizes a high-power low phase noise RF amplifier. Two continuous variable attenuators are used to adjust the power level of the signal before and after the RF amplifier. The frequency of the sinusoid includes L-, S-, C-, and X-Band, depending on the model.

19" Rackmount Enclosure

System Operation

A high-power low phase noise RF amplifier is incorporated in the RF driver. The power level of the input RF signal is adjusted with a variable attenuator to place the signal in the different operating regions of the RF amplifier. Depending on the application, the signal can be placed in linear or saturation regions. A variable attenuator at the output of the amplifier adjusts the power to the desired level. The specification of the RF amplifier is as follows:

Output Power: 30 dBm Psat min
Small Signal Gain: 40 dB
Noise Figure: 6 dB max
VSWR: 1.5:1

And the specification of the RF attenuator is as follows:

Attenuation: 30 dB
VSWR: 1.5:1

RF Signal Souce

RF signals can come from an external source to an SMA connector on the rear panel or the internal wideband signal generator. Both RF signals are routed to an RF switch with an 80 dB isolation. The RF source forwarded out of the RF switch is based on the toggle switch on the front panel.

Wideband Signal Generator and Sensor

The internal wideband signal generator can generate sinusoidal signals from 500 MHz to 15000 MHz. The start and stop frequency sweep is controlled on the front panel. A bandpass filter is set at the signal generator to limit the frequency to the desired frequency range. The generated waveform can drive the RF output. A frequency counter measures the frequency of the signal being outputted.

Remote Control and Logic

Remote digital control for selecting RF source, routing RF signal, and interlock on/off is implemented. The digital control can be accessed via a terminal block on the rear panel. The digital control sets the status of the RF electromechanical switch.

RF Signal Output

The RF output is routed to an SMA connector at the rear panel. The power level of the signal depends on the attenuation applied, and it's up to 1-Watt.

General Info

Input power requirement is nominal 120 VAC, 60 Hz. The dimension of the enclosure is 17" x18" x3.5" (WxDxH). The enclosure is 2U on a standard 19" rack.