MODEL: WBR-0518-MOD
SUPER HETERODYNE RECEIVER

Main Features

- Wide Frequency Range: 0.5 to 18 GHz
- Three simultaneous IF outputs
- AM and FM detectors
- Low Phase Noise
- Modes of Operation: Scan Mode or Search Mode
- Built-in test functions
- Low Power Consumption

APPLICATIONS

The Model WBR-0518-MOD Wide band Receiver utilizes cutting edge technology which provides a high performance and cost effective solution. It has been designed for use as a stand alone receiver or it can be used in more complex receiving systems for ELINT and ESM applications.
The Model WBR-0518-MOD Super Heterodyne Wideband Receiver was designed to be a low cost, high performance, self contained system capable of advanced detection and processing of communication and non-communication signals. This receiver offers all the features required for high data rate reception while maintaining high pulse fidelity for interception of radar signals. It is ideally suited for today’s complex environments.

Signals from the antenna are fed to the WBR receiver input. The input stage consists of a high dynamic range front end which includes a preselector. The dual down converter sections use synthesized LO inputs to convert all incoming signals to 1 GHz signal. This 1 GHz signal is then fed to the IF assembly for further conversion, gain control and filtering to provide simultaneous outputs of 160 MHz and 380 MHz. The 1 GHz signal is also provided as a third and separate IF output. In addition, the 1 GHz signal is fed, in parallel, to the demodulator sections which comprise of AM and FM detectors. These can then extract the respective amplitude and frequency information from the modulated 1 GHz IF signal be it CW or narrow pulse widths of 50 nanoseconds.

The WBR internal control assembly configures all of the receiver sub-assemblies and collects their response to generate a global status report. The internal control assembly also includes a communication link with the external Host computer.

The WBR has built in test (BIT) capability which continuously monitors the operation of the receiver. In the event of a malfunction, it will issue a failure indication alert to the main system.
MAIN SPECIFICATION

- Operating Input Frequency: 0.5-18GHz
- Noise Figure: 14dB
- Sensitivity: -58dBm at 500MHz and SNR of 15dB
- DCA Range: 0-60 dB with 1 dB steps
- Measurable Pulse Width: 50ns to CW
- Input Signal Modulations: Pulse, AM and FM
- Instantaneous Dynamic Range: 59 dB
- Number of IF outputs: 3
- IF signal #1: Centered at 380 MHz with selectable bandwidths of 50, 100, 250, 500 MHz
- IF signal #2: Centered at 160 MHz with selectable bandwidths of 1, 10, 20, 50, 100MHz
- IF signal #3: Centered at 1 GHz with bandwidth of 500 MHz
- Image Rejection: 60 dB, min
- RF to IF Gain: 5 to 10 dB
- Input 1dB CP: +1dBm
- Input / Output Impedance: 50 Ohm
- Input / Output VSWR: 2:1, max
- Spurious Level: -55dBm, max
- Input Power: +20dBm, max. Without damage
- Total Tuning and Settling Speed: Less than 1ms to center frequency
- Tuning Step Size: 1MHz min.
- Phase Noise: Integrated Phase Error: 0.8º rms
- Phase Noise Performance (SSB):
  - 85dBc/Hz at 1kHz offset
  - 90dBc/Hz at 10kHz offset
  - 100dBc/Hz at 100kHz offset
  - 130dBc/Hz at 1 MHz offset
- Tuner Frequency Stability: Less than 1 ppm/year
- Video Signal Outputs LOG AM and FM Detectors (at 1 GHz, BW: 100 or 500 MHz)
- Power Supplies:
  - 5 VDC ± 2.5% @ 3.2A max.
  - 5 VDC ± 2.5% @ 0.1A max.
  - 12VDC ± 5% @ 3.6A max.
  - 12VDC ± 5% @ 0.3A max.
- Receiver Controls: Fast Ethernet (100Base T)
- BIT:
  - On line – runs in the background
  - Off line – upon request
- Temperature Range of 0°C to +70°C
- SIZE: L=440mm / 17.3” W=220mm / 8.66” H=40mm / 1.57”
- Weight: 5.8Kg / 13.8 Lb
The WBR outline shown below can be modified to meet installation requirements of complex receiver systems.