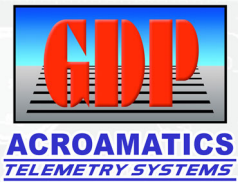


4 Input Diversity Combiner / Array Processor



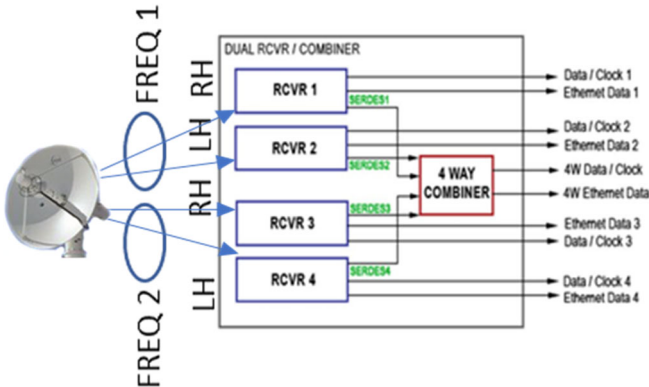
4-Channel Combiner Offers 3 db Performance Improvement over IRIG BSS and 3 db Improvement over 2 Way Combiner!

- **Unique in the Industry**
- Aligns & Combines Signals from up to 4 RF Sources
- Works for all Modulations
- Up to 6 dB (5.5 dB Typ) Performance Increase
- Optional Combining or Correlating Best Source Selection based on Selected Metric
 - Level (AGC), SNR, Data Quality
- Combines the Aligned, Weighted Signals to Provide Multipath / Fade Mitigation

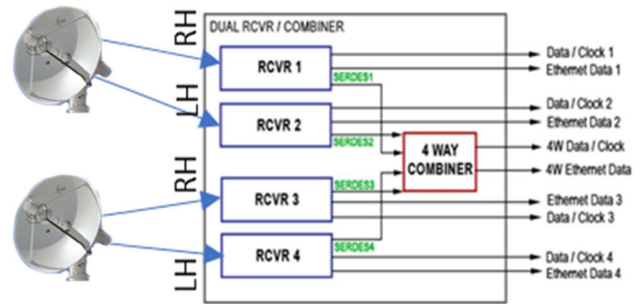
GDP Space Systems' Telemetry Receiver product line now supports the combining of 4 RF Input Signals using a unique receiver architecture in which our frontend RF tuner / digitizer AGCs, down converts, filters and digitizes the received signal from each receiver channel. The digitized IF signal from each receiver is sent to our multi-input combiner/array processor via high-speed (digital) serial links. Combining of N channels (currently up to 4 channels) is then done in the digital domain. The array processor/combiner not only adjusts phase but also adjusts amplitude and performs time alignment of the RF signals. There are a variety of configurations available. In addition to the Data/Clock outputs from the channels and combiners, Ethernet Chapter 10 and IRIG 218 TMOIP outputs are available. The units also support IRIG106 Chapter 7 decoding.



Quad L/R Polarization & Frequency Diversity

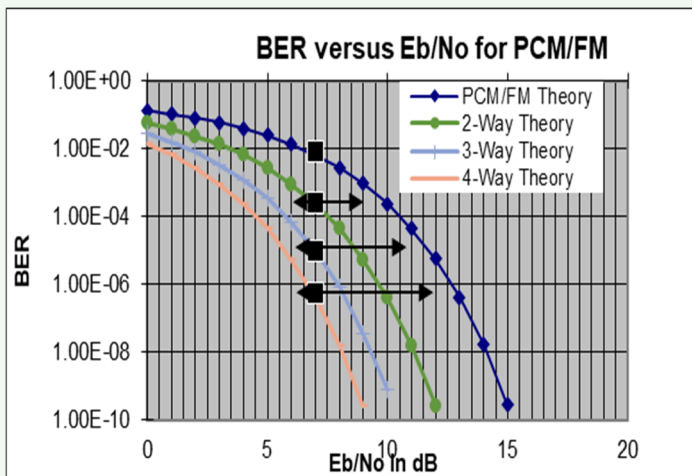


Quad L/R Polarization & Spatial Diversity

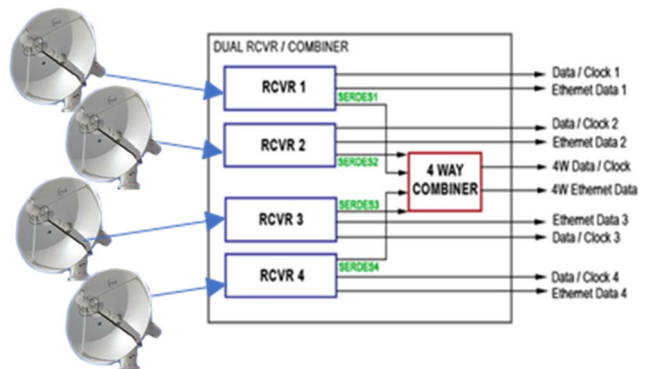


Measured Performance Gain

> 5.5dB: 4 Channels > 4.3dB: 3 Channels > 2.5dB: 2 Channels



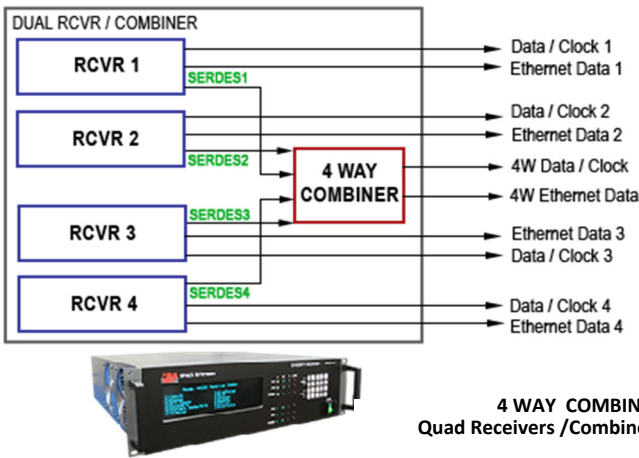
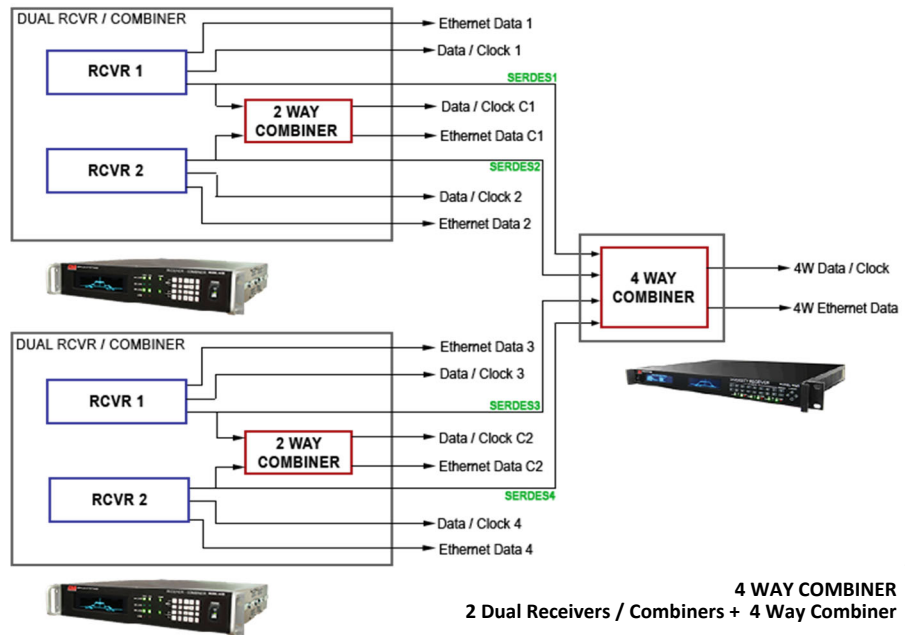
Quad Input Spatial Diversity



4 Input Diversity Combiner / Array Processor

Dual Diversity

This configuration supports implementations that already have GDP Space Systems' Receivers installed with 2 input combiners. In this configuration, an external 4 input RF diversity combiner/ array processor box could be added that takes the digitized IF outputs of each channel as inputs to the 4-way external combiner via the high-speed serial SERDES links.



Quad Channel with Diversity

In this configuration, four channels with diversity are provided in a 3U chassis. Four independent receiver channels feed a GDP Space Systems' advanced 4 input Diversity Combiner. In addition to the 4 input Diversity Combiner, these units support all of the GDP Space Systems' advanced RF combining modes that use not only AGC but also SNR and Data Quality.

Two Dual Channel Boxes

In this configuration, we use two Dual Channel Receivers with Diversity Combiners. They could be used as separate units (2 Dual Channel each with Diversity Combiner) for standard missions and then ganged together via external high-speed serial SERDES cable connecting the digitized IF signals from each Receiver to the 4 input Combiner, as shown in the block diagram for critical missions combining all four channels.

