

Gryphon RF

RF Specifications*



Receiver Specifications

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|-----------------------------|---|
| Input RF Frequency Range | C-Band 4400 – 5250 MHz S-Band 2185 – 2485 MHz U/L L-Band 1420 - 1850 MHz P-Band Extended 500 - 1250 MHz P-Band 200-500 MHz IF 70 MHz |
| RF Inputs | 2 |
| Frequency Tuning Resolution | 50 kHz |
| Dynamic Range | -10 dBm to -104 dBm |
| VSWR Ratio | 2:1 typical, 2.5:1 maximum |
| Noise Figure | 5 dB typical, 8 dB max |
| Maximum Safe RF Input Level | +20 dBm without damage |
| Input Impedance | 50 ohms into SMA connectors |
| Spurious signal rejection | > 60 dBc |

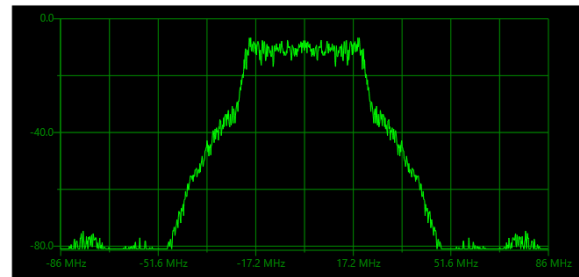
Signal Processing Specifications

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|--------------------------|--|
| IF Bandwidth | 20 kHz to 56 MHz |
| Demodulation Modes | FM/SOQPSK/BPSK/QPSK/GMSK |
| Diversity Combiner | Optimal Ratio and Best Source |
| Combiner Mode: | Pre-D |
| AFC Tracking | Maximum AFC acquisition range is +/- 50 MHz for C and S Band; +/- 25 MHz for L-Band; +/- 12.5 MHz for EP Band; +/- 6.25 MHz for P-Band/IF 70 MHz |
| AFC Frequency Resolution | 1 kHz for all bands |
| AFC Acquisition | ≤ 100 msec for all bands |
| AGC Time Constants | 1.0 msec, 0.1msec, 0.01msec, selectable |
| AGC Modes | Automatic, Manual, Freeze |
| AM AGC Out | AC coupled AM AGC detector output, 50 kHz frequency response, 5 Vpp bipolar or unipolar out |
| AGC DC Level Detector | DC coupled form 0 to +/- 3.5 VDC for min to max RF AGC attenuation |

Physical Specifications

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|----------------------|--|
| Dimensions | 2U 19" rackmount chassis with 100V-240V AC input capability |
| Interface Connectors | RF inputs and outputs through N-Channel connectors, baseband PCM inputs and outputs through single ended 75 ohm BNC rackmount connectors |
| Manufacturing | The design utilizes Surface Mount Technology (SMT) manufactured with robotic assembly techniques to IPC-610B Class 2 manufacturing standards |
| Temperature Range | Operating: 0°C to 50°C Storage: -20°C to 60°C |
| Power Consumption: | Less than 300 Watts |

Receiver 1 Waveform



RF Power
-42.8 dBm

LQ Tester

| | | | |
|----------------|-------------------|-----------------------|------------------|
| Sync | Lock | Total Errors | 2 |
| Update | Update | Interval BER | 0.00E+000 |
| RX Bits | 9.925E+010 | Cumulative BER | 2.02E-011 |
| Seconds | 4960.4 | | |

Clear Insert Error End Test

RF Generator Specifications (Optional)

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|---------------------------|--|
| Output RF Frequency Range | C-Band 4400 – 5250 MHz S-Band 2185 – 2485 MHz Upper L-Band 1700 – 1850 MHz Lower L-Band 1420 – 1590 MHz P-Band Extended 500 – 1250 MHz P-Band 200– 500 MHz IF 70 MHz |
| Transmit Outputs: | 1 |
| IF Bandwidth | 1 kHz to 40 MHz |
| Modulation Modes | FM/SOQPSK/BPSK/QPSK/GMSK |
| Modulation Source | Tarsus3 PCM simulator running stored PN-11/15 patterns, user defined PCM frame, archived user data, or external TTL Input PCM stream |
| Output Dynamic Range | -20 dB to -90 dB |
| Output Impedance | 50 ohms using SMA connector |

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Gryphon RF

PCM Baseband Specifications*

Bit Synchronizer Input Specifications

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|---------------------------|---|
| Input Data Rate | Bit Sync programmable input tunable rates from 1 bps to 40 Mbps for NRZ-L/M/S, RNRZ-L and 1 bps to 20 Mbps for Bi- Φ L/M/S |
| Input Source | 2 independent inputs per bits (Receiver direct internal input, 1 single ended BNC) |
| Input Impedance | Hi-Z/75 Ω /50 Ω , single ended input, software selectable |
| Maximum Safe Input | \pm 35 VDC |
| Input Signal Level | 30 mVp-p to 5 Vp-p |
| DC Input Level | +/- 5 VDC |
| Input PCM Codetypes Modes | NRZ-L/M/S, RNRZ-L, RZ, Bi- Φ L/M/S, program selectable (consult factory for other codetypes) |
| Derandomizer Input | RNRZ-11/15, forward/reverse, program selectable |
| Input Polarity | Normal, inverted or auto selectable using frame sync correlator |

Bit Synchronizer Data Specifications

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|------------------------|---|
| Loop Bandwidth | 0.01% to 3.0%, to the programmed bit rate |
| Capture Range | +/-3 times of the programmed loop bandwidth |
| Data Tracking Range | +/-5 times of the programmed loop bandwidth |
| Sync Acquisition | Less than 200 bits, typically 100 bits max |
| Bit Error Probability | Less than 1 dB to theoretical bit sync BER performance for bit rates up to 25 Mbps, less than 2 dB to theoretical from 25 Mbps to 33 Mbps, less than 2.7 dB to theoretical to 40 Mbps |
| PCM Encoder Output | TTL and RS422 Level driven |
| PCM Encoder Code Types | NRZ-L/M/S, RNRZ-L, RZ, Bi- Φ L/M/S or RNRZ 11/15, program selectable |
| Clock Output | 0°, 90°, 180°, 270° |

Frame Sync/Decommutator Specifications

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|------------------------------------|---|
| Input Data Rate | Up to 50 Mbps |
| Input Signals | TTL Level single ended, RS-422 differential or direct from Bit Sync section of the PCM Processor, NRZ-L and clock |
| Word Lengths | 3 to 64 bits variable from channel to channel |
| Minor Frame Length | 3 to 16,777,216 bits |
| Major Frame Length | 1 to 1024 minor frames per major frame |
| PCM bit word order | MSB or LSB, word by word basis, program selectable |
| Frame Sync Pattern | 16 to 64 bits |
| Frame Sync Location | Leading the minor frame |
| Frame Sync Strategy | Search-Check-Lock, programmable counts per step |
| Subframe Sync | FCC or SFID |
| Sync Error Tolerance | 0 to 8 bits, program selectable |
| Bit Slip Window | 0 to 9999 bits, program selectable |
| Data Polarity | Normal or inverted on a channel by channel basis |
| Asynchronously Embedded Formats | Supports up to 8 asynchronous embedded formats based on computer CPU capability |
| Bit Concatenation/Fragmented Words | Software decommutator can combine individual bits from separate PCM words |

DAC Output Specifications

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|--------------------|---|
| Number of Channels | 2 |
| Output Level | 1 Vpp to 5 Vpp, selectable in 0.1 Vpp steps, \pm 2.5V offset in 0.1 VDC steps |

Time Code Reader Specifications

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|----------------|--|
| IRIG Codetypes | Supports DC Level IRIG-B and AM Modulated IRIG A, B, G & NASA-36 |
|----------------|--|

Gryphon RF Diagnostics

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| Version Control | All current software, firmware and driver version numbers stored for easy retrieval |
| Latest Setup | Current card setup configuration is stored for verification of proper setup |
| Diagnostic Download | Direct download to file for transfer to Ulyssix for evaluation and recommendations |

Physical Specifications

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| Manufacturing | The design utilizes Surface Mount Technology (SMT), manufactured with robotic assembly techniques to IPC-610B Class 2 manufacturing standards |
| Temperature Range | Operating: 0°C to 50°C Storage: -20°C to 60°C |
| Power Consumption: | Less than 300 Watts |

Ordering Options

| | |
|-----------------------------------|--|
| Gryphon-RF | 2U rackmount Dual Multi-Mode RF Receiver with Diversity Combiner C/S/L-Band/Extended-P/P-Band, and Dual PCM Processing capability, IRIG Time Code Reader, PCM Simulation and BERT Tester Option for Bit Error Tester of RF and PCM Data Stream |
| ULX-OPT-Gryphon TX | RF Modulating Multi-Mode/Multi-Band transmitter/generator also with frequency translation capability |
| ULX-OPT-CH10 | Chapter 10 recording and reproducer for both Chapter 10 disk files and UDP-CH10-Ethernet packets |
| ULX-OPT-TMoIP | TMoIP Ethernet output capability to IRIG standard TMoIP receiver station and processor |
| ULX-OPT-UDP PARAM/FRAME BROADCAST | UDP Frame and/or decom parameter multicast or unicast broadcast for external ALTAIR software networking or external data transfer |

PCM Simulator Specifications

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|----------------------|---|
| Output Data Rate | 1 bps to 40 Mbps for NRZ-x, RNRZ-L, or 20 Mbps for all others |
| Output PCM Codetypes | NRZ-L/M/S, RNRZ-L 11/15, RZ, Bi- Φ L/M/S, RNRZ 11/15/, forward/reverse, program selectable |
| Output Signal Levels | Data and Clock, TTL, and RS422 level driven |
| Word Lengths | 3 to 64 bits, variable length |
| Frame Length | Same as decommutator specs |
| Data Words | Fixed or math functions (sine wave, triangle, square wave, sawtooth, counter) with programmable sample rate |