

# TalonRF-PCI

## Digital Telemetry Receiver

S/UL/LL/P/IF Band Receiver

Multi-Mode Digital Demodulator

Field Upgradable FPGA Algorithms

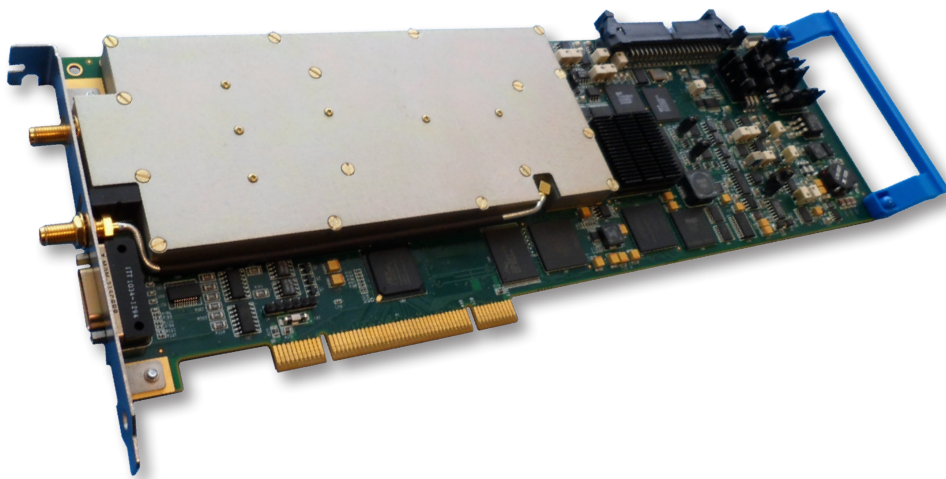
PCM

**RF**

FM

Data Link  
Analyzers

Custom  
Telemetry  
Solutions



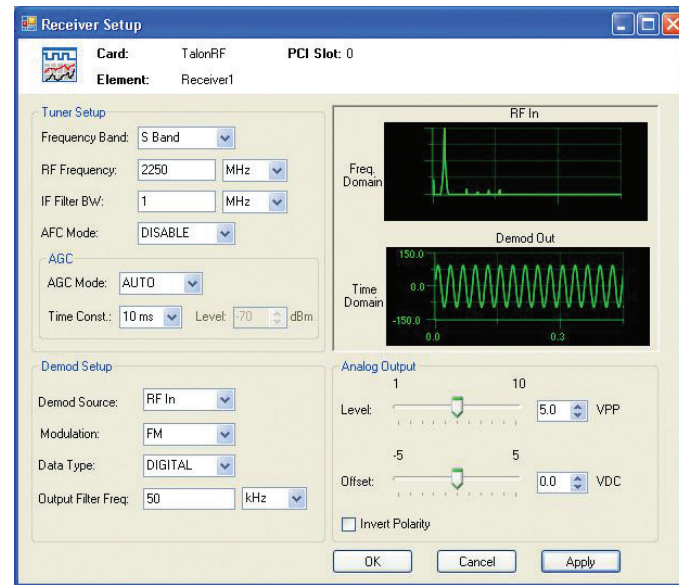
*Board  
Level  
Solution*

**Ulyssix**   
Technologies, Inc.  
a woman-owned small business

*Telemetry  
Receiver*

## Main System Features

- User-friendly and intuitive software GUI
- FM, PM, BPSK, with optional QPSK, AUQPSK, SOQPSK demodulation types
- High speed transfer of the output data to PCI bus for FFT analysis
- No tuning and preventive maintenance required
- Fully digital Demodulator for enhanced capabilities
- Single or Tri-band configurations available



## RF Capabilities

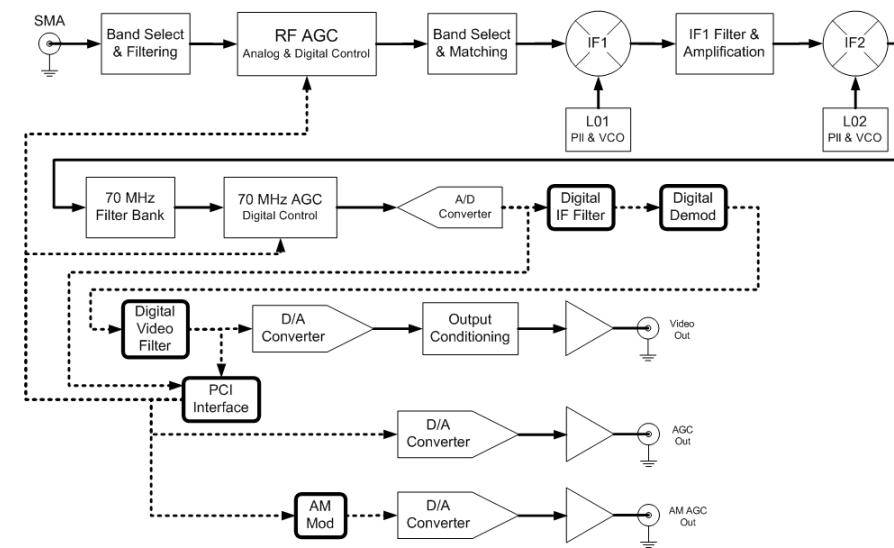
- Frequency range of S, Upper-L, Lower-L and P bands including GPS L1
- IF Data Bandwidth programmable from 1 kHz - 36 MHz
- Single or Tri-band configurations available
- 50 kHz Input Frequency Tuning Resolution
- AM and Level AGC test points available for antenna tracking on BNC outputs
- 70 MHz downconverter output available

## Also Available In Integrated Chassis:

Gryphon300 system  
Single or Dual Channel Receiver



## TalonRF Block Diagram



## Demodulator

- Capable of demodulating FM, PM, BPSK, with optional QPSK, AUQPSK, SOQPSK
- Fully programmable digital FIR output filter can be bypassed for higher PCM data rates
- FPGA-based architecture allowing for rapid enhancements and customization
- Analog reconstructed data is available on BNC connectors for easy user access
- User selectable output filter characteristics for analog or digital output data
- Digitally time synchronized and sampled output data available for FFT analysis and direct capture



# Specifications

## Input Specifications

Input Frequency Range	P-Band 415-450 MHz Lower L-Band 1420 - 1590 MHz (includes GPS L1) Upper L-Band 1700 - 1850 MHz S-Band 2185 - 2485 MHz
IF Bandwidth	1 kHz to 36 MHz, programmable to 4 digit resolution
Frequency Tuning Resolution	50.0 kHz steps
Dynamic Range	-10 dB to Threshold
VSWR Ratio	2.0:1 typical, 1.5:1 Max
Noise Figure	9 dB Typical, 12 dB maximum
Maximum Safe Input	+10 dBm
PM Deviation Range	0.3 to 2.5 radians, programmable
Demodulation Modes	FM * BPSK Standard QPSK/AUQPSK/SOQPSK Optional
Nominal Impedance	50 Ohms
Spurious Rejection	50 dB
AFC Tracking	+/- 500 kHz of programmed center frequency with 10kHz frequency resolution
AGC Time Constants	0.1msec, 1.0 msec, 10msec, 100msec, or 1.0 sec, selectable
AM AGC BNC Out	AC coupled AM AGC detector output, 50 KHz frequency response, 5 Vpp bipolar, full scale
AGC Level Detector BNC OUT	DC coupled from 0 to -4 VDC for min to max RF attenuation, 20 dB per volt

## Demodulator Specifications

Data Rates	Up to 30 Mbps (FM) Up to 10 Mbps (BPSK) Up to 20 Mbps (QPSK & SOQPSK)
Output Linearity	Less than 0.05% of the programmed full deviation bandwidth measured from best 3 point straight line
Output Harmonic Distortion	All harmonic terms are below -56 dB for single carrier sinewave modulation
Output Filtering Modes	Analog Linear Data Mode: The FIR filter is programmed to be flat within 0.1 dB in the programmed passband and -60 dB attenuation at two times the programmed cutoff frequency.  Digital (PCM) Data Mode: The FIR filter is programmed to be monotonic in the passband with -3 dB attenuation at the programmed cutoff frequency and down -50 dB at 2.5 to 3.0 times the programmed cutoff frequency.  Bypass Mode: The digital and analog reconstruction filters are bypassed for maximum digital data throughput. The data frequency throughput is equal to the programmed deviation filter frequency
Output Filter Range	Programmable from 1/128 to 1 times the IF Bandwidth, 4 digit resolution with a total range of 100 Hz to 30 MHz
Demod Analog Output Level	Programmable from 1.0 Vpp to 5.0 Vpp (Loaded)
Downconverter Outputs	RF buffered 70 MHz output

## Physical Specifications

PCI Form Factor	32 bit PCI form factor, +5 Volt System
Interface Connectors	RF input & 70 MHz IF output: SMA connectors Analog Output & AGC Testpoints: MDM-21 Pigtail
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 30 Watts total, for all supplies

## Ordering Options

TalonRF-PCI-01S	S-Band PCI Receiver with digital IF and video filters. Supports data rates up to 30 Mbps
TalonRF-PCI-01UL	Upper L-Band PCI Receiver with digital IF and video filters. Supports data rates up to 30 Mbps
TalonRF-PCI-01LL	Lower L-Band PCI Receiver with digital IF and video filters. Supports data rates up to 30 Mbps
TalonRF-PCI-01P	P-Band PCI Receiver with digital IF and video filters. Supports data rates up to 30 Mbps
TalonRF-PCI-03	S-Band, Upper L-Band and Lower L-Band PCI Receiver with digital IF and video filters. Supports data rates up to 30 Mbps
TalonRF-PCI-01IF	70 MHz PCI Receiver
TalonRF-03-OPT-PBAnd	Upgrade for the TalonRF-PCI-03 to include P-Band instead of S, UL, or LL Band.
TalonRF-OPT-Quad	Upgrade for the TalonRF-PCI to include QPSK, AUQPSK and SOQPSK demodulation capability
Gryphon301-01	Single Channel S-Band, Upper L-Band or Lower L-Band Receiver with digital IF and video filters. Supports data rates up to 30 Mbps. Including 2U rackmount chassis with Ulyssix embedded operating system, built-in graphic display, embedded keypad entry system
Gryphon301-03	Single Channel S-Band, Upper L-Band and Lower L-Band Receiver with digital IF and video filters. Supports data rates up to 30 Mbps. Including 2U rackmount chassis with Ulyssix embedded operating system, built-in graphic display, embedded keypad entry system
Gryphon302-01	Dual Channel S-Band, Upper L-Band or Lower L-Band Receiver with digital IF and video filters. Supports data rates up to 30 Mbps. Including 2U rackmount chassis with Ulyssix embedded operating system, built-in graphic display, embedded keypad entry system
Gryphon302-03	Dual Channel S-Band, Upper L-Band and Lower L-Band Receiver with digital IF and video filters. Supports data rates up to 30 Mbps. Including 2U rackmount chassis with Ulyssix embedded operating system, built-in graphic display, embedded keypad entry system
Gryphon301-03-OPT-PBAnd	Upgrade for the Gryphon301-03 to include P-Band instead of S, UL, or LL Band.
Gryphon302-03-OPT-PBAnd	Upgrade for the Gryphon302-03 to include P-Band instead of S, UL, or LL Band.

Specifications subject to change without notice.