

SI-8649A/PF/S3B25S1T6A PICO FLEXOR TRANSCEIVER

MEETING TODAY'S CHALLENGES TO PROVIDE A SECURE FUTURE

The PicoFlexor™ Transceiver is a miniature tactical software definable radio (SDR) platform that integrates a transceiver with a high-performance SIGINT superheterodyne receiver in a single low-SWaP package. Optimized to integrate with open SDR standards such as RedHawk and GNURadio, it can be used for both application development and field deployment. It combines the high RF performance of the PicoFlexor™, state of the art digital processing, and a simple development interface to create a best-in-class SIGINT SDR solution.

The PicoFlexor Transceiver's SIGINT receiver supports a tuning range of 2 MHz to 3 GHz with an instantaneous 25 MHz bandwidth. Its transceiver provides VHF/UHF/SHF coverage with excellent wideband transmit and receive performance in a instantaneous 56 MHz bandwidth at center-tuned frequencies of 70 MHz to 6 GHz and moderately good receive and transmit performance at center-tuned frequencies down to 48 MHz, providing coverage down to 20 MHz within its

instantaneous bandwidth. The unit features an internal GPS receiver and a VITA 49 digital IF output that provide a means to time stamp collected data for re-transmission or for aligning data from multiple units in TDOA or DF applications.

The PicoFlexor™ Transceiver's software-definable architecture means that it can be deployed for a signal intercept/analysis application, re-deployed for threat warning/situation awareness, and again re-deployed to other mission-critical applications, such as precision geo-location or modern signal analysis. It can be used as a data link, an RF relay, a Pico cell or in a host of electronic warfare applications such as jamming, deception, or disruption. Its digital architecture provides a roadmap that will allow rapid leverage of power reduction and performance gains of next-generation digital technology.

The PicoFlexor Transceiver is preloaded with narrowband surveillance signal processing functionality, optimized for low power consumption.



- One SDR SIGINT Receiver:
 - 2 MHz - 3 GHz tuning range with 25 MHz bandwidth
 - ADC sample size 16 bits
 - Based on PicoFlexor™ RF performance
- One SDR Transceiver:
 - Transmit (TX) Receive (RX) channels
 - 70 MHz - 6 GHz frequency range with 56 MHz bandpass (coverage to 20 MHz)

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FEATURES

- Low size, weight and power (SWAP)
- SDR-compatible embedded Linux platform with a field-upgradeable open architecture
- Phase-coherent digital IF (I/Q) with time stamping per VITA 49 allows alignment of data from multiple units for TDOA or DF
- MIL-STD-810G rugged
- Pre-select and post-select filters (downlink and uplink) and SAW filtering tailored for popular communications bands
- Supports GNU Radio and RedHawk open source frameworks
- Digital data snapshot provides foundation for high-speed signal search, new energy detection, or IF panoramic display
- Swapping of removable micro-SD card allows for download of new mission profiles

SIGINT RECEIVER CAPABILITIES

Input frequency range	2 MHz to 3.0 GHz
Specification compliant range	30 MHz to 3.0 GHz
Tuning resolution	1 Hz
Settling time	50 microseconds maximum
RF tuner bandwidth	25 MHz
Digital IF output format	Real or complex, VRT encoded over 10-Gigabit Ethernet
Gain	Pre-digitizer and post-digitizer gain control
Demodulation	AM, FM, PM, CW, USB and LSB with standard narrowband receiver software load
Digital receiver bandwidths	Programmable 2 kHz to 25 MHz with variable fractional output sample rate
Data interfaces	USB 2.0 USG OTG standard & Gigabit Ethernet with optional AEP Dual module
Digital IF data	In-phase and quadrature-phase (I/Q), 16-bit time-stamped and compliant with VITA-49

TRANSCEIVER RECEIVER CAPABILITIES

Center-tuned input frequency range	
Specification compliant	70 MHz to 6.0 GHz
Additional tuning range	48 MHz to 70 MHz
Pre-digitization bandwidth	56 MHz maximum at -3 dB points
DDC bandwidth	Programmable 2 kHz to 56 MHz
Tuning resolution	2.4 Hz
Gain control	0 to 50 dB in 1 dB steps

TRANSCEIVER TRANSMITTER CAPABILITIES

Output frequency range	
Specification-compliant	70 MHz to 6.0 GHz
Additional tuning range	48 MHz to 70 MHz
Output bandwidth	56 MHz maximum at -3 dB points
DDC bandwidth	Programmable 2 kHz to 56 MHz
Tuning resolution	2.4 Hz
Output level	0 dBm maximum (enabled); -70 dBm maximum (disabled)
Waveform data format	12-bit IQ
Waveform data playback	Single shot, looping
Noise generator	Uniform (PSD)

SWAP

Power consumption	10 watts typical
Weight	2.5 lb maximum
Size (W x L x H)	3.5-inch x 5.7 inch x 1.9 inch

ENVIRONMENTAL GOALS

Operating temperature range	-30°C to +80°C (case), 60,000 ft
Storage temperature range	-40°C to +85°C
Humidity	0 to 90% non-condensing

ORDERING INFORMATION

SI-8649A/PF/S3B25S1T6A	Single-channel 25 MHz BW PicoFlexor Transceiver with S1 digital configuration consisting of: Xilinx ZYNQ 7020 FPGA, ARM Cortex A9 CPU, 512 MB LPDDR2 memory and 4 GB micro-SD card
8649A/AEP/DUAL/DEV	Optional Aft-End Peripheral development interface

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