

# SI-8649A/PF PICO FLEXOR TRANSCEIVER

## A RECEIVER AND TRANSMITTER IN A LOW SWAP SDR PLATFORM

The PicoFlexor Transceiver is a miniature tactical software definable radio (SDR) platform that integrates a transmitter with a high-performance SIGINT super-heterodyne receiver in a single low-SWAP package. Optimized to integrate with open SDR standards, it can be used for both application development and field deployment. It combines the high RF performance, 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 frequency coverage of 11 MHz to 3 GHz with an instantaneous 25 MHz bandwidth. Its transmitter provides VHF/UHF/SHF coverage with excellent wideband transmit performance in an instantaneous 56 MHz bandwidth at center-tuned frequencies of 70 MHz to 6 GHz 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.

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 geolocation 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 surveillance signal processing functionality, optimized for low power consumption.



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## HIGHLIGHTS

- Low size, weight and power (SWAP)
- SDR-compatible embedded Linux platform with a field-upgradeable open architecture
- Digital IF (I/Q) with time stamping per VITA 49
- MIL-STD-810G rugged
- Pre-select and post-select filters (downlink and uplink) and SAW filtering tailored for popular communications bands
- 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



PicoFlexor Transceiver with optional Aft-End Peripheral (AEP) module for application development.

## TRANSMITTER CAPABILITIES

PARAMETER	SPECIFICATION
Specification compliant output frequency range	70 MHz to 6 GHz
Additional output frequency range	48 MHz to 70 MHz (coverage to 20 MHz)
Output -3 dB bandwidth	56 MHz maximum
DDC bandwidth	2 kHz to 56 MHz
Tuning resolution	2.4 Hz
Output level	0 dBm ± 2 dB (enabled); -100 dBm max. (disabled)
Waveform data format	16-bit IQ
Waveform data playback	Single shot, looping, streaming
Noise generator	Uniform (PSD)
Timing precision	≤ 10 nanoseconds

## SWAP & ENVIRONMENTAL CHARACTERISTICS

PARAMETER	SPECIFICATION
Size (W x L x H)	3.0 x 5.6 x 1.8 inches without AEP 3.0 x 7.7 x 1.8 inches with AEP
Weight	1.8 lbs. without AEP 2.4 lbs. with AEP
Power consumption S1T6A	11 watts typical without AEP 13 watts typical with AEP
Power consumption S3T6A	13.5 watts typical without AEP 15.5 watts typical with AEP
Temperature, operating	-40°C to +80°C (case), 60,000 ft.
Temperature, storage	-40°C to +85°C
Humidity	10 to 90% non-condensing

## SIGINT RECEIVER CAPABILITIES

PARAMETER	SPECIFICATION
Input frequency range	11 MHz - 3 GHz
Specification compliant range	30 MHz to 3 GHz
Tuning resolution	1 Hz
Settling time (max.)	500 microseconds
RF tuner bandwidth	25 MHz
Gain	Pre-digitizer and post-digitizer gain control
Demodulation	AM, FM, PM, CW, USB and LSB with standard receiver software load
Digital receiver bandwidths	Programmable 20 to 80% of output sample rate
Data interfaces	USB 2.0, USG OTG standard & Gigabit Ethernet with optimal AEP dual module
Digital IF data	In-phase and quadrature-phase (I/Q), 16-bit time-stamped and compliant with VITA-49

## PICOFLEXOR TRANSCEIVER PRODUCT LINE

NOMENCLATURE	DESCRIPTION
SI-8649A/PF/S3B25S1T6A	Single-channel PicoFlexor Transceiver with Xilinx ZYNQ 7020 FPGA digital configuration
SI-8649A/PF/S3B25S3T6A	Single-channel PicoFlexor Transceiver with Xilinx ZYNQ 7045 FPGA digital configuration
8649A/PF/AEPDUAL/DEV	Optional Aft-End Peripheral development interface

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PN 14105764-001, -002 | REV H | October 2019

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