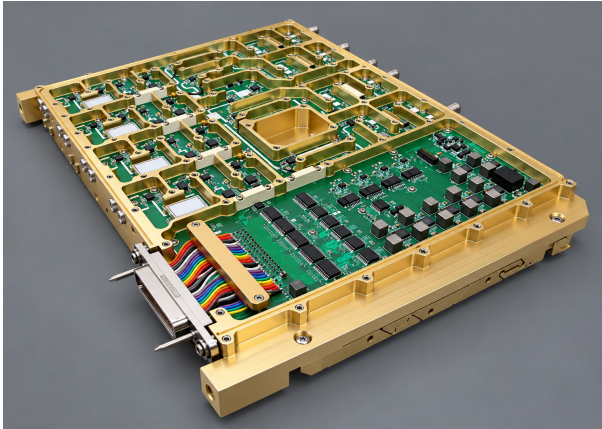


RADAR Transceiver Module

Multi-Function RADAR RF TRANSCEIVER



TRAK TECOM developed a cutting-edge RADAR transceiver module. This is a lightweight multi-function RF solution which integrates SAR radar system functions that were traditionally implemented in several separate sub-assemblies.

Designed for commercial and military airborne environments, featuring ultra-low phase noise performance in extreme vibration environments.

Features & Benefits

OCXO Vibration Compensation via Dual Approach

The electrical and mechanical vibration compensation technology used by this transceiver achieves accurate frequency stability and ultra-low phase noise in the most severe, vibration-prone environments which are common in military airborne applications.

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Key Features

Focusing on highly stable ultra-low phase noise and high dynamic range for better resolution.

- High accuracy OCXO with lowest possible phase noise employing dual vibration compensation methodology
- High TX/RX dynamic range, >75dB at stop band
- High transmit output power
- High speed switching (<100nS) between two AESA terminals
- High channel to channel isolation (>40dB)
- 0-63dB receiver gain control range
- Anti-aliasing filtering (>60dB close end) on the receive IF output to prevent aliasing (fold back)
- Tuned for best impulse response (IPR) to improve 'moving target' detection
- High linearity and low noise figure
- 2:1 VSWR
- Internal BIT (Built-in Test)
- Low power consumption <35 watts with single DC input
- Compact form factor
- Operating temperature: -40 degrees C to +85 degrees C
- Operating frequency: as per the customer requirements/application - we have X-band and Ku-band RADAR transceivers

Applications

- ADC/DAC clock or LO for frequency conversion
- Intended for high vibration environments
- Airborne RADAR and EW systems
- Satellite communication systems



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RADAR Transceiver Module

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Frequency I/O Scheme

- High accuracy coherent exciter (ADC/DAC clock) output (S-band) created using OCXO fed multiplier chain

Frequency I/O Scheme

- Transmit LO (S-band) signal for internal use, created by mixing Exciter signal and intermediate OCXO multiplied frequency
- Transmit signal to AESA, created using external Wave Form Synthesizer (WFS) input multiplies up and mixed with Transmit LO signal
- Receiver IF output. Received signals are mixed to multiplied WFS signals to down convert at S-band

Distribution Subsystem

- 4 receive channels
- 3 transmit channels
- AESA loopback and internal loopback
- Exciter output
- LO RF and TX RF outputs

Internal BIT (Built - in Test)

Real time system status monitoring for detecting RF faults. Temperature faults to ensure the reliability of the RF transceiver during operations.

Form Factor

With a width of less than 1.8 inches and a weight of less than 7 pounds, the multi-function RF transceiver combines the required STALO, RF converter, AESA interface, and internal loopback functions into a single module.



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