

SDR 2400AD

K-Band | Single-Channel Tx / Single-Channel Rx | Kit or Embedded

SDR 2400AD is an advanced low-power and compact software-defined single transmitter and single receiver radar in K-band. It is suitable for human activity monitoring, vital-sign detection, gesture sensing, and many other indoor and outdoor target detection and imaging.

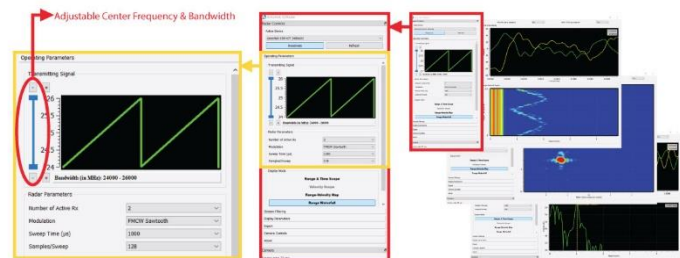


The **RF module** is implemented with phase-locked loop (PLL) to achieve linearity in frequency modulations. The center frequency and the bandwidth of transmitted signals are selectable and adjustable within a wide frequency band of 24-26 GHz.

The **FPGA-based processor module** functions as a microcontroller, processor and power management unit and offers ultimate design flexibility with industry-leading programmable logic. It has four 40-MSPS ADCs to support the receiving channel. A high-speed USB peripheral controller enables digitized raw data streaming to a memory storage for post-processing. It interfaces with the RF module with a 24-pin flat flex cable (FFC) to form a standalone system.

The **graphical user interface (GUI)** allows the flexibility and adjustability in selecting desired signal waveform, center frequency, bandwidth, sampling rate, filtering, display parameters, and record/export I/Q data.

Typical output power of the transmitter is 18 dBm. Two single-ended SMA female connectors are installed for easy connection to external antenna units.



Specifications

Specifications	Min.	Typ.	Max.	Units
No. of Tx/No. of Rx	Single-channel Tx/Single-channel Rx			
Waveforms	FMCW Sawtooth/FSK/CW			
Typical Frequency Limits	24		26	GHz
Typical Bandwidth	0		2000	MHz
FMCW Sweep Time	0.125/0.25/0.5/1/2/4/8 (ms)			
Number of Samples/Sweep	8/16/32/64/128/256/512/1024/2048/4096			
Tuning Voltage	0		5	V
Tuning Sensitivity @RF Port		0.8		GHz/V
Transmit Power	16	18	20	dBm
SSB Phase Noise @1MHz offset		-102		dBc/Hz
Noise Figure		5		dB
Maximum input power		5		dBm
IIP3		-4		dBm
IIP _{1dB}		-12		dBm
Supply voltage	4.75	5	5.25	V
Supply current	1110	1130		mA
Operating temperature	-40		85	°C
Dimensions	L=138 W=103 H=30			mm

Features

- K-band 24-26 GHz
- Monostatic radar
- Flexibility and adjustability in selecting center frequency and bandwidth
- Moderate output power
- Low phase noise
- Low power consumption
- SMA connectors for external antennas
- Fractional-N phase-locked loop for VCO nonlinearity compensation

Embedded Version Available

- Embedded Linux OS
- Custom-designed battery management system – up to **4 hours** on a single charge
- 7-inch touch-screen display
- Remotely controllable – suitable for field trials

