

SC5312A

6 GHz Direct IQ Demodulator for PXI Express

The SC5312A is a single slot, 3U, PXI Express, 400 MHz to 6 GHz direct IQ demodulator, downconverting RF directly to analog In-phase (I) and Quadrature (Q) IF or IQ baseband components. The frequency range of the baseband/IF output is DC to 160 MHz. The module can also be operated as a single stage downconverter. The DC-coupled differential IQ pair may be fed to any dual channel digitizer for analog to digital data conversion. The local oscillator (LO) is supplied by any external signal source capable of tuning over the range of the SC5312A (like the SignalCore SC5505A dual channel signal source). The SC5312A can daisy-chain the LO signal, allowing a single source module to drive multiple direct IQ downconverters for coherent reception.

The SC5312A has an auxiliary RF input port that may be connected to the auxiliary RF output port of SignalCore IQ modulators like the SC5412A to aid with system digital equalization that corrects for IQ impairments associated with the device(s).

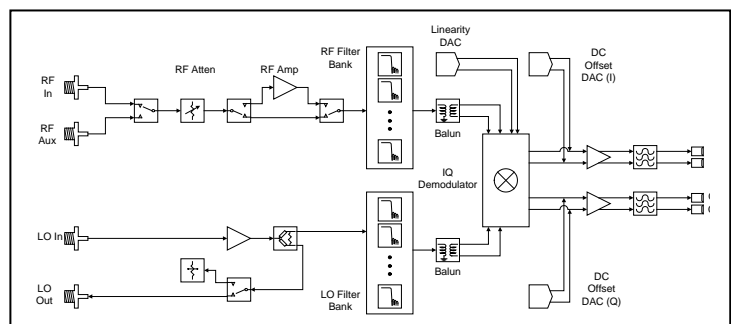
The user can access internal correction DACs, applying compensation offsets to improve the demodulator linearity, IP2, DC offsets, and common mode output voltage of the differential ports. The input compression-to-noise dynamic range is typically 150 dB with noise figure less than 10 dB. IMD is less than -70 dBc for a -20 dBm input signal.

The SC5312A is designed to be paired with the SC5505A signal source to form a complete RF direct IQ demodulator/downconverter solution. It can also be configured with the SC5412A direct IQ upconverter as the core of an RF signal transceiver. The SC5312A's high dynamic range, along with its compact size, low power consumption, and modular flexibility make it attractive for system integration into applications such as wireless device testing, software defined radio research, point-to-point radio, multichannel coherent systems, and other academic and military programs.



Product Features

- RF range 400 MHz to 6 GHz
- DC to 160 MHz baseband
- Noise floor < -165 dBm/Hz
- Input IP3 > 15 dBm
- DC offset calibration
- Adjustable gain > 60 dB



SC5312A Simplified Block Diagram

