



SDC-A Series Multi-Octave Downconverter

Datasheet



Saluki Technology Inc.

The document applies to the multi-octave downconverter of the following models:

- SDC20A multi-octave downconverter (RF input 0.5Hz - 20GHz)
- SDC26A multi-octave downconverter (RF input 0.5Hz - 26.5GHz)
- SDC40A multi-octave downconverter (RF input 0.5Hz - 40GHz)
- SDC50A multi-octave downconverter (RF input 0.5Hz - 50GHz)
- SDC67A multi-octave downconverter (RF input 0.5Hz - 67GHz)

Standard Package of the SDC-A series multi-octave downconverter:

No.	Item	Qty.
1	Multi-octave Downconverter	1
2	Power Cord	1
3	Certificate of Calibration	1

Options of the SDC-A series multi-octave downconverter:

Model No.	Item	Description
SDC-MA	IF/BW IF/Bandwidth	IF Output: 70±20MHz
SDC-MB	IF/BW IF/Bandwidth	IF Output: 140±40MHz
SDC-MC	IF/BW IF/Bandwidth	IF Output: 0.72±0.25GHz
SDC-MD	IF/BW IF/Bandwidth	IF Output: 1.2±0.25GHz
SDC-ME	IF/BW IF/Bandwidth	IF Output: 1.2±0.5GHz
SDC-MF	IF/BW IF/Bandwidth	IF Output: 1.8±1GHz
SDC-MG	IF/BW IF/Bandwidth	IF Output: 3±2GHz
SDC-IQ	IQ Baseband Output	IQ Baseband Output
SDC-ATT35	ATT35	Maximum input of signal power increased from -30dBm to +5dBm

Preface

Thank you for choosing SDC-A series multi-octave downconverter produced by Saluki Technology Inc.

We devote ourselves to meeting your demands, providing you high-quality measuring instrument and the best after-sales service. We persist with “superior quality and considerate service”, and are committed to offering satisfactory products and service for our clients.

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Saluki Technology

Document Authorization

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Product Quality Assurance

The warranty period of the product is three years from the date of delivery. The instrument manufacturer will repair or replace damaged parts according to the actual situation within the warranty period.

Product Quality Certificate

The product meets the indicator requirements of the document at the time of delivery. Calibration and measurement are completed by the measuring organization with qualifications specified by the state, and relevant data are provided for reference.

Quality/Settings Management

Research, development, manufacturing and testing of the product comply with the requirements of the quality and environmental management system.

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1. Overview

Saluki SDC-A Series Multi-Octave Downconverter belongs to our microwave downconverter series that has a high performance and an octave coverage by RF signal. Its frequency step is precise and accurate to 10Hz with a variety of IF and signal bandwidth choices.

This series of converter is mainly used for electronic countermeasure system, radar system, and satellite communication system. Its excellent phase noise, clutter suppression, and in-band flatness data can provide a transparent RF transmission channel to all videos or data communications. All programming commands can be set through a local panel or through network remotely. SDC-A series microwave downconverter is available in 2U/4U sizes.

Applications: T&M Systems / Satellite Communications / MIMO / Radar System

2. Main Characteristics

- Multi-octave RF coverage (0.5 - 67GHz)
- 4GHz or above instantaneous signal bandwidth
- Amplitude Equalization and Group Delay Equalization
- Variety of commonly used IF and bandwidth combinations
- Excellent phase noise specification (67GHz): $\leq -100\text{dBc/Hz}@10\text{kHz}$
- Internal and external reference switching
- Remote programming

3. Technical Specifications

3.1. Input Characteristics

Model No.	SDC20A	SDC26A	SDC40A	SDC50A	SDC67A
Input Frequency Range	0.5-20GHz	0.5-26.5GHz	0.5-40GHz	0.5-50GHz	0.5-67GHz
Frequency Tuning Step Size	10Hz				
Maximum Input of Signal Power	-30dBm(operating), +10dBm(damaged) (+5dBm operating, ATT35 support)				
Input LO Leakage	$\leq -80\text{dBm}$				
Input VSWR	≤ 2.5				
Input Impedance	50Ω				

3.2. Output Characteristics

Model No.	SDC20A	SDC26A	SDC40A	SDC50A	SDC67A
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Output Frequency	70±20MHz, 140±40MHz, 0.72±0.25GHz, 1.2±0.25GHz, 1.2±0.5GHz, 1.8±1GHz, 3±2GHz (select between single or multiple IF outputs)
P-1 Output Power	≥ +13dBm
IM3 Output	≤ -60dBc (Δ5MHz, Maximum gain, Power output: 2*-10dBm)
Output VSWR	≤ 1.4
Output Impedance	50Ω

3.3. Transfer Characteristics

Model No.	SDC20A	SDC26A	SDC40A	SDC50A	SDC67A
Gain	10-45dB				
Tuning Step Size	0.1dB				
Gain Resolution	≤ ±1dB				
Level Stability	≤ ±0.5dB/day at room temperature				
Gain Flatness / Signal Bandwidth	≤ ±0.3dB/40MHz, ≤ ±0.5dB/80MHz, ≤ ±1dB/500MHz, ≤ ±1.5dB/1000MHz, ≤ ± 2dB/2000MHz, ≤ ±3dB/4000MHz, ≤ ±2dB/Full Band				
IF Inband Frequency Clutter/ Signal Related	≤ -55dBc (0dBm output, excluding IF output harmonics)				
IF Shutdown Feature	≥ 80dB				
Noise Figure (max. Gain)	≤ 12dB	≤ 15dB	≤ 18dB	≤ 18dB	≤ 18dB
Image Rejection	≤ -60dBc				
Phase Noise (dBc/Hz)	≤ -50@10Hz	≤ -50@10Hz	≤ -50@10Hz	≤ -50@10Hz	≤ -50@10Hz
	≤ -80@100Hz	≤ -75@100Hz	≤ -75@100Hz	≤ -75@100Hz	≤ -75@100Hz
	≤ -95@1kHz	≤ -95@1kHz	≤ -95@1kHz	≤ -95@1kHz	≤ -95@1kHz
	≤ -102@10kHz	≤ -100@10kHz	≤ -100@10kHz	≤ -100@10kHz	≤ -100@10kHz
	≤ -102@100kHz	≤ -100@100kHz	≤ -100@100kHz	≤ -100@100kHz	≤ -100@100kHz
	≤ -108@1MHz	≤ -108@1MHz	≤ -105@1MHz	≤ -105@1MHz	≤ -105@1MHz

3.4. Reference Characteristics

Model No.	SDC20A	SDC26A	SDC40A	SDC50A	SDC67A
Internal Reference Frequency Stability	±2e-8 (0°C to +50°C, after 30min power on)				
Internal Reference Frequency Accuracy	0.05ppm				
Internal Reference Power Output	5±2dBm, 50Ω, 10MHz, Sine wave				

External Reference Power Input	5±2dBm, 50Ω, 10MHz, Sine wave
Reference Phase Noise	$\leq -125\text{dBc/Hz}@10\text{Hz}$, $\leq -140\text{dBc/Hz}@100\text{Hz}$, $\leq -150\text{dBc/Hz}@1\text{kHz}$, $\leq -155\text{dBc/Hz}@10\text{kHz}$, $\leq -155\text{dBc/Hz}@100\text{kHz}$

3.5. Physical Characteristics

Model No.	SDC20A	SDC26A	SDC40A	SDC50A	SDC67A
RF Input Port	2.92mm-K	2.92mm-K	2.92mm-K	2.4mm-K	1.85mm-K
IF Output Port	SMA-K				
I/Q Output Port	SMA-K				
External Reference Input Port	BNC female				
Internal Reference Output Port	BNC female				
Control Interface	RJ-45 (TCP/IP over Ethernet) / RS422				
Power Supply	AC, 176-264VAC, 45Hz-65Hz, Power consumption 140W				
Dimension	483mm*90mm*550mm (2U)	483mm*180mm*550mm (4U)			
Weight	15kg	25kg			

3.6. Environment

Operating	Temperature: 0°C to +50°C, Humidity: up to 95% @30°C, Noncondensing, Height: 3000 meters
Storage	Temperature: -30°C to +70°C, Humidity: up to 95% @40°C, Noncondensing, Height: 12000 meters, Shock and Vibration: Regular road transport/air transport

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