

Getting Started Guide

SC2510 – RF Distribution Module

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1 Overview

The SignalCraft SC2510 RF Distribution Module is a high-performance, active 8-way RF splitter engineered for applications requiring phase coherence, high isolation, and net 0 dB gain. It ensures consistent signal strength across all output ports while maintaining phase stability, making it ideal for LO (Local Oscillator) distribution in MIMO systems, aerospace and defense test setups, and other software defined radio (SDR) applications.

This document explains how to install and perform a quick functional verification test of the SC2510.

1.1 Electromagnetic Compatibility

This product has been designed to meet regulatory requirements and limits for electromagnetic compatibility (EMC). These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.

This product is intended for use in laboratory environments. However, harmful interference may occur in some installations, when the product is connected to a peripheral or test device, or if the product is used in residential or commercial areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.



CAUTION

To minimize the risk of EMC interference, operate this product with shielded cables and accessories.

1.2 ESD Protection



CAUTION

Always observe standard ESD control practices to mitigate the risk of electrostatic discharge damage to sensitive electronic components. Never touch the exposed pins of any connectors.

1.3 Unboxing

Remove the device from the packaging and inspect for any signs of damage.

1. Notify the reseller if the device appears damaged.
2. Do not attempt to install a damaged device.

Follow the recommended procedures when handling the SC2510. Ensure this product is used only as intended and in accordance with all instructions to prevent risk of injury or equipment damage.

2.1 Accessories

The SC2510 includes a power supply.

The following items are not included in your SC2510 kit but are required for operation:

- SMA(m) to SMA(m) RF cable
- 50 Ω load

3 Installing the SC2510 Hardware

1. Remove the plastic protection caps from all SMA connectors.
2. Connect RF cables between the SC2510 and external test equipment as required.



CAUTION

Apply external signals only while the SC2510 is powered on. Applying external signals while the device is powered off may cause damage.

3. Terminate the unused ports with a 50 Ω load.
4. Apply power to the SC2510 by plugging in the barrel connector of the 15V AC/DC adapter to the power input of the SC2510.

4 Hardware Connections



Figure 1: SC2510 RF Distribution Module (front)



Figure 2 SC2510 RF Distribution Module (back)

4.1 Ports

Connector	Rating	Connector type
RF _{IN}	RF input (500 MHz to 8GHz), max +15 dBm	SMA (f)
RF _{OUT}	RF input (500 MHz to 8GHz), max +15 dBm	SMA (f)
Power	15V, 1.0A	Power barrel connector jack

5 Basic Output Test Setup

Use the following steps to confirm your SC2510 is functioning properly.

5.1 Out of Box Test

The SC2510 requires no programming or configuration.

Before you start, make sure you've got the following equipment ready to go:

- Signal generator to provide reference input
- Spectrum analyzer or power meter to compare RF_{IN} to RF_{OUT} for all 8 RF_{OUT} channels
- 1 RF cable with an SMA male connector on one end and a suitable connector or adaptor on the other end for connection to a spectrum analyzer or power meter
- 1 RF cable for the signal generator
- 7 50 Ω loads

Use the following procedure to set up the test configuration:

1. Ensure that the spectrum analyzer is configured to the right settings (e.g., ensure the frequency range is correct).
2. Remove the black plastic caps from the following SMA ports:
 - RF_{IN}
 - RF_{OUT} , Port 1-8
3. Connect the signal generator to the RF_{IN} port of the SC2510. Ensure that the signal generator output is disabled when making this connection.
4. Connect the 50 Ω loads to the ports that are not in use.
5. Connect the spectrum analyzer or power meter to the RF_{OUT} Port 1 port of the SC2510.
6. Apply power to the SC2510 and wait for the unit to be fully operational.
7. Set the signal generator to a frequency within the operational frequency range (500 MHz to 8 GHz) with a power level of max +15 dBm.
8. Use the spectrum analyzer or power meter to monitor the output signal of RF_{OUT} Port 1. If successful, you should observe a signal that aligns with the specifications of the SC2510 (see <https://www.signalcraft.com/support/support-microwave/> for a copy of the Product Specification).
9. Repeat this process for all other RF_{OUT} ports.

6 Support and Warranty

We're here to help. This section outlines how to reach our support team, what's covered under warranty, and how to place an order.

6.1 Contacting Support

If you experience any issues during setup or require assistance, please contact our technical support team at www.signalcraft.com/support or email us at support@signalcraft.com. We will do our best to answer you within two business days.

6.2 Warranty

SignalCraft Technologies, Inc. warrants against defects in materials or workmanship for a period of 12 months from the warranty start date and agrees to repair or replace any defective products without charge. This Limited Warranty is for the sole benefit of the original end user purchaser of the products ("the customer") and is non-transferable. Original shipping charges are non-refundable.

Repair services are available for out-of-warranty products. For more information, see [Terms and Conditions](#).

6.3 Ordering Information

Send inquiries to support@signalcraft.com and check out <https://www.signalcraft.com> for a description of our products and services.