

Signal Chain Power Series Output Connection Board

DESCRIPTION

Demonstration circuit SCP-OUTPUT-EVALZ enables external connections to an SCP power system. It accepts standard banana jacks and clip-lead type connectors to attach to DUTs, loads, and meters.

Like all boards in the Signal Chain Power series, this board is designed to be easily plugged into other SCP boards to form a complete signal chain power system, enabling fast evaluation of low power signal chains. To evaluate this board, some universal SCP hardware is required, namely:

SCP-FILTER-EVALZ	SCP-INPUT-EVALZ
SCP-1X2BKOUT-EVALZ	SCP-1X5BKOUT-EVALZ
SCP-5X1-EVALZ	SCP-THRUBRD-EVALZ

To properly evaluate SCP series demo boards, you will need the SCP Configurator companion software. SCP Configurator can help you choose the right board and topology for your design.

Design files for this circuit board are available.

All registered trademarks and trademarks are property of their respective owners.

Table 1. Performance Summary.

SYMBOL	PARAMETER	NOTES	MIN	TYP	MAX	UNITS
$V_{IN(MAX)}$	Max Input Voltage				250	V
$V_{OUT(MAX)}$	Max Output Voltage	Output Capacitor Rating Limited Replace for higher V_{OUT}			250	V
$I_{OUT(MAX)}$	Max Output Current				3	A
$I_{LED(MAX)}$	Max Indicator LED Current	See Configuration Section			30	mA

BOARD IMAGE

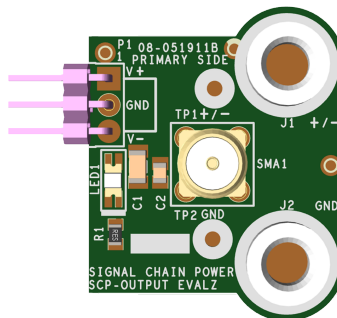


Figure 1. SCP-OUTPUT-EVALZ Evaluation Board

DEMO MANUAL SCP-OUTPUT-EVALZ

QUICK START PROCEDURE

Demonstration circuit SCP-OUTPUT-EVALZ is easy to set up to evaluate the performance of any SCP hardware configuration.

1. The SCP-OUTPUT-EVALZ ships with a bi-directional LED to indicate applied voltage. To set the limiting resistor, see “Configuration Settings” section, and modify the board accordingly. Be sure to check for open connections or solder shorts after making any modifications.
2. Connect the SCP-INPUT-EVALZ and SCP-OUTPUT-EVALZ boards to the SCP board under evaluation (refer to Figure 2) and connect the input board to a voltage source, V_{SOURCE} . Connect the output board to a voltmeter or dynamic load. Slowly raise the input voltage until the SCP-INPUT-EVALZ powers up the device under test into regulation and sweep V_{SOURCE} through the desired range of operation.

NOTE: Make sure that the input voltage is always within spec. If using a dynamic load to measure output voltage, make sure the load is initially set to zero.

3. Check for proper output voltage. The output should be regulated at the programmed value ($\pm 5\%$).
4. Once the proper output voltage is established, power off V_{SOURCE} and similarly test other boards in the SCP system until all elements have been individually verified prior to assembling into the final circuit configuration.

NOTE: When measuring the input or output voltage ripple, use the optional SMA connector locations available on the input, output, 1×5 , 1×2 , and 5×1 breakout boards. Avoid using the test point connections with long scope leads.

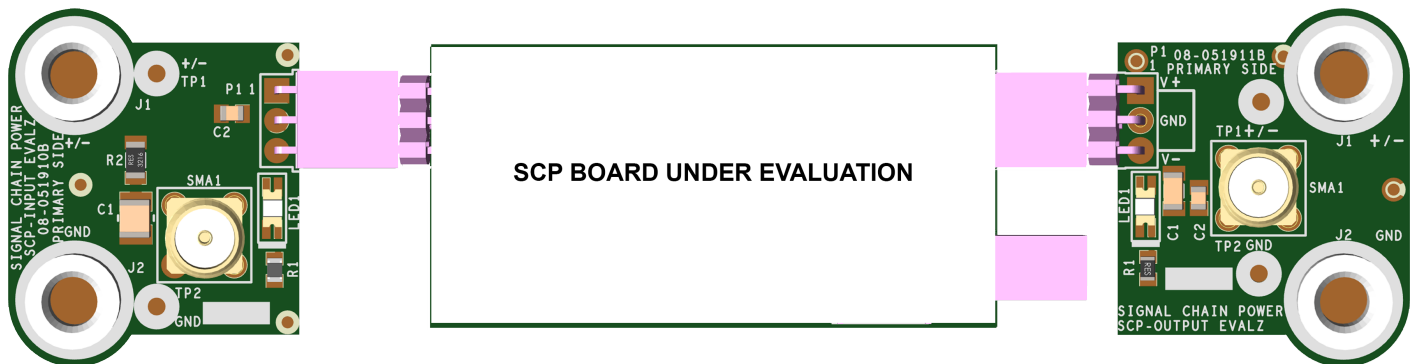


Figure 2. Proper Measurement Equipment Setup (Use SMA connectors for Measuring Input or Output Ripple)

CONFIGURATION SETTINGS

Demonstration circuit SCP-OUTPUT-EVALZ enables external connections to an SCP power system. It accepts standard banana jacks and clip-lead type connectors to attach to DUTs, loads, and meters.

INDICATOR LED CURRENT

$$I_{LED} = \frac{V_{IN} - [2.00V_{MIN}; 2.40V_{MAX}]}{R1}$$

Table 2. LED Current-Limiting Resistor Selection Table

V _{IN} (V)	R1 (Ω)	V _{IN} (V)	R1 (Ω)
2.5	24.9	23.0	1.05k
3.0	49.9	24.0	1.10k
3.3	9	25.0	1.15k
3.5	75	26.0	1.21k
4.0	100	27.0	1.24k
4.5	124	28.0	1.30k
5.0	150	29.0	1.33k
5.5	174	30.0	1.40k
6.0	200	31.0	1.43k
6.5	226	32.0	1.50k
7.0	249	33.0	1.54k
7.5	274	34.0	1.58k
8.0	301	35.0	1.65k
8.5	324	36.0	1.69k
9.0	348	37.0	1.74k
9.5	374	38.0	1.78k
10.0	402	39.0	1.87k
11.0	453	40.0	1.91k
12.0	499	41.0	1.96k
13.0	549	42.0	2.00k
14.0	604	43.0	2.05k
15.0	649	44.0	2.10k
16.0	698	45.0	2.15k
17.0	750	46.0	2.21k
18.0	806	47.0	2.26k
19.0	845	48.0	2.32k
20.0	909	49.0	2.37k
21.0	953	50.0V	2.43k
22.0	1.00k		

SIGNAL MEASUREMENT CONFIGURATION

The output has a vertical SMA output connector for easy connection to test or measurement equipment. It can also be used to carry power out of the system in a coaxial environment, if desired. Additionally, the banana jacks are spaced at 0.750" for use with BNC (female) to double stacking banana plug type adapters (Pomona model 1269 or equivalent). The spacing also allows for close connection to dynamic loads with this standard.

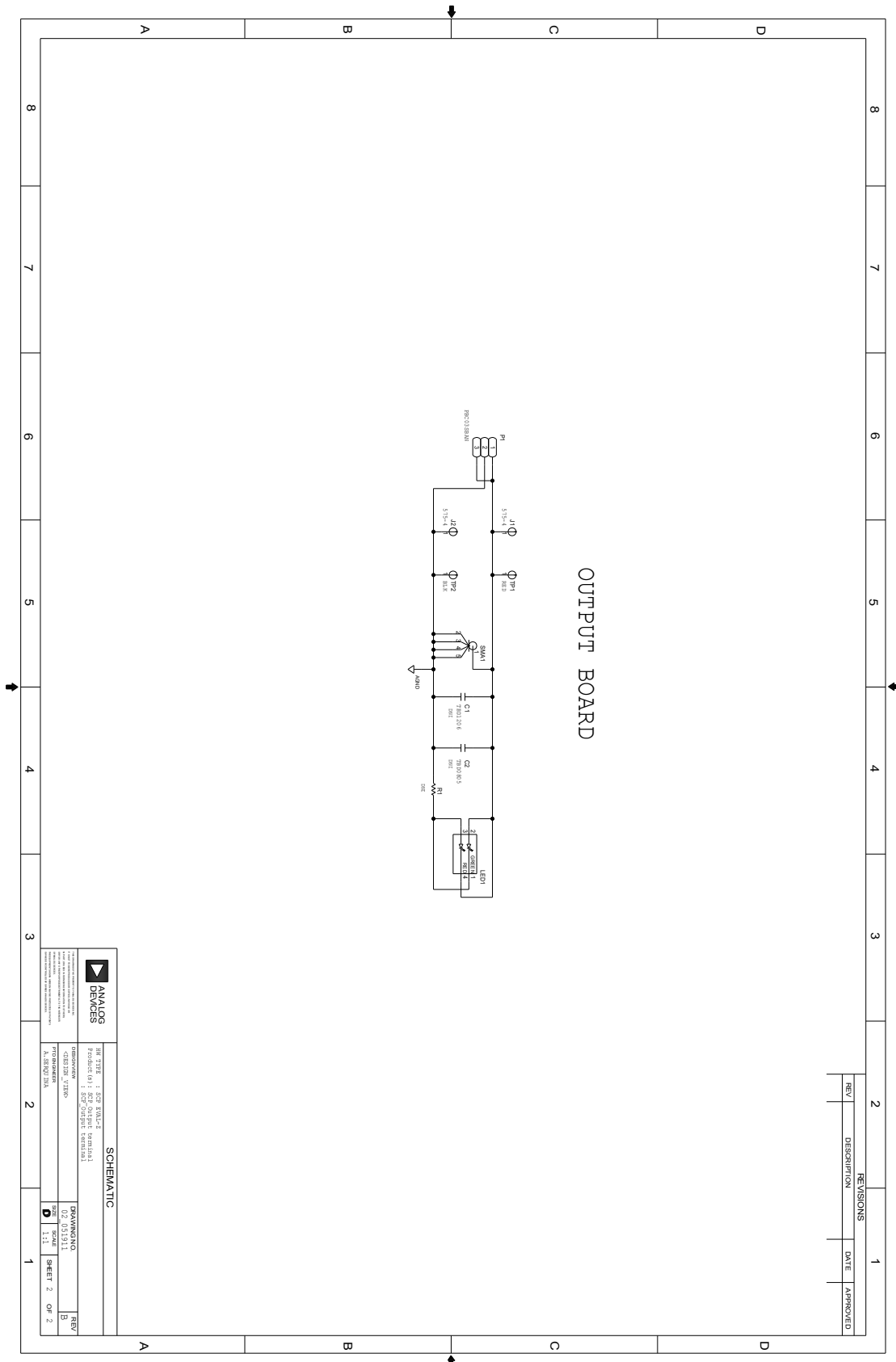
DEMO MANUAL SCP-OUTPUT-EVALZ

PARTS LIST

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
1	1	PCB	PCB	ANALOG DEVICES 08_051911b
2	1	C1	CAP MLCC 1206 (Note 1)	N/A
3	1	C2	CAP MLCC 0805 (Note 1)	N/A
4	2	J1, J2	CONN-PCB BANANA JACK	KEYSTONE ELECTRONICS 575-4
5	1	LED1	LED BI-COLOR GREEN/RED	LITE-ON TECHNOLOGY LTST-C235KGKRKT
6	1	P1	CONN FEMALE 3POS 2.54MM PITCH R/A	SULLINS PPPC031LGBN-RC
7	1	R1	RES THICK FILM 0805 (Note 1)	N/A
8	1	SMA1	CONN-PCB STRAIGHT SMA PCB DIE CAST	TE CONNECTIVITY LTD 5-1814832-1
9	1	TP1	CONN-PCB TEST POINT RED	KEYSTONE ELECTRONICS 5010
10	1	TP2	CONN-PCB TEST POINT BLACK	KEYSTONE ELECTRONICS 5011

Note 1. This item is not stuffed (DNI).

SCHEMATIC DIAGRAM



DEMO MANUAL SCP-OUTPUT-EVALZ



ESD Caution

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

Legal Terms and Conditions

By using the evaluation board discussed herein (together with any tools, components documentation or support materials, the "Evaluation Board"), you are agreeing to be bound by the terms and conditions set forth below ("Agreement") unless you have purchased the Evaluation Board, in which case the Analog Devices Standard Terms and Conditions of Sale shall govern. Do not use the Evaluation Board until you have read and agreed to the Agreement. Your use of the Evaluation Board shall signify your acceptance of the Agreement. This Agreement is made by and between you ("Customer") and Analog Devices, Inc. ("ADI"), with its principal place of business at One Technology Way, Norwood, MA 02062, USA. Subject to the terms and conditions of the Agreement, ADI hereby grants to Customer a free, limited, personal, temporary, non-exclusive, non-sublicensable, non-transferable license to use the Evaluation Board FOR EVALUATION PURPOSES ONLY. Customer understands and agrees that the Evaluation Board is provided for the sole and exclusive purpose referenced above, and agrees not to use the Evaluation Board for any other purpose. Furthermore, the license granted is expressly made subject to the following additional limitations: Customer shall not (i) rent, lease, display, sell, transfer, assign, sublicense, or distribute the Evaluation Board; and (ii) permit any Third Party to access the Evaluation Board. As used herein, the term "Third Party" includes any entity other than ADI, Customer, their employees, affiliates and in-house consultants. The Evaluation Board is NOT sold to Customer; all rights not expressly granted herein, including ownership of the Evaluation Board, are reserved by ADI. CONFIDENTIALITY. This Agreement and the Evaluation Board shall all be considered the confidential and proprietary information of ADI. Customer may not disclose or transfer any portion of the Evaluation Board to any other party for any reason. Upon discontinuation of use of the Evaluation Board or termination of this Agreement, Customer agrees to promptly return the Evaluation Board to ADI. ADDITIONAL RESTRICTIONS. Customer may not disassemble, decompile or reverse engineer chips on the Evaluation Board. Customer shall inform ADI of any occurred damages or any modifications or alterations it makes to the Evaluation Board, including but not limited to soldering or any other activity that affects the material content of the Evaluation Board. Modifications to the Evaluation Board must comply with applicable law, including but not limited to the RoHS Directive. TERMINATION. ADI may terminate this Agreement at any time upon giving written notice to Customer. Customer agrees to return to ADI the Evaluation Board at that time. LIMITATION OF LIABILITY. THE EVALUATION BOARD PROVIDED HEREUNDER IS PROVIDED "AS IS" AND ADI MAKES NO WARRANTIES OR REPRESENTATIONS OF ANY KIND WITH RESPECT TO IT. ADI SPECIFICALLY DISCLAIMS ANY REPRESENTATIONS, ENDORSEMENTS, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, RELATED TO THE EVALUATION BOARD INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, TITLE, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. IN NO EVENT WILL ADI AND ITS LICENSORS BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES RESULTING FROM CUSTOMER'S POSSESSION OR USE OF THE EVALUATION BOARD, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DELAY COSTS, LABOR COSTS OR LOSS OF GOODWILL. ADI'S TOTAL LIABILITY FROM ANY AND ALL CAUSES SHALL BE LIMITED TO THE AMOUNT OF ONE HUNDRED US DOLLARS (\$100.00). EXPORT. Customer agrees that it will not directly or indirectly export the Evaluation Board to another country, and that it will comply with all applicable United States federal laws and regulations relating to exports. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the substantive laws of the Commonwealth of Massachusetts (excluding conflict of law rules). Any legal action regarding this Agreement will be heard in the state or federal courts having jurisdiction in Suffolk County, Massachusetts, and Customer hereby submits to the personal jurisdiction and venue of such courts. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement and is expressly disclaimed.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Analog Devices Inc.:](#)

[SCP-OUTPUT-EVALZ](#)