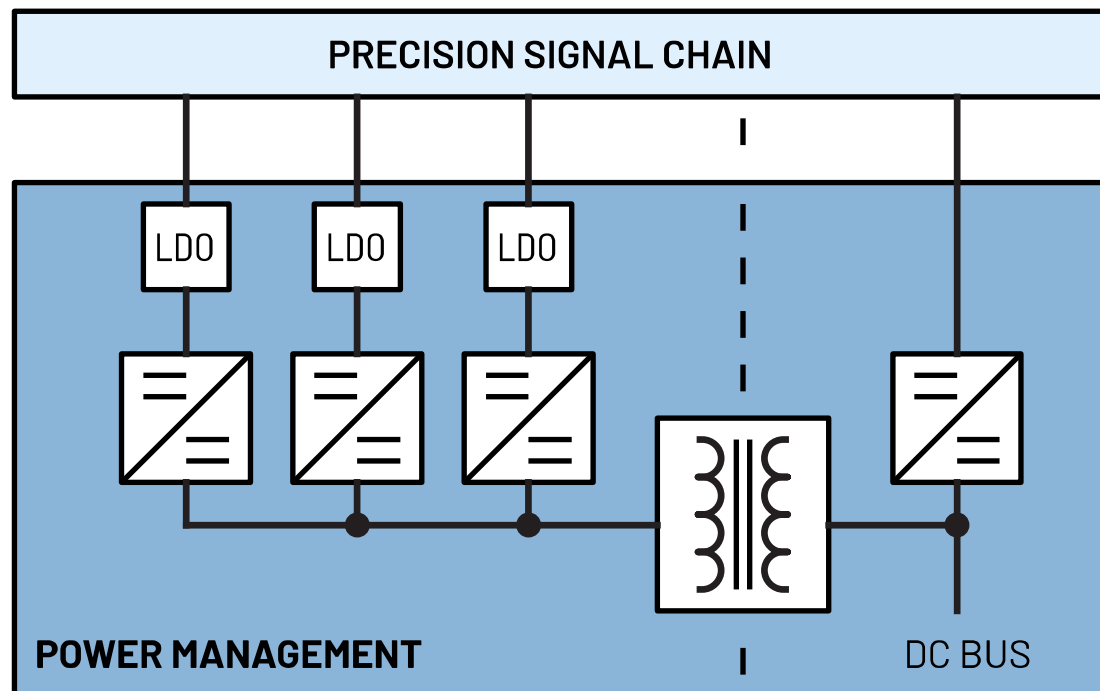


POWER SOLUTIONS FOR PRECISION TECHNOLOGY SIGNAL CHAINS

PRECISION CURRENT SENSING Generic Signal Chains for Current Measurement Shunt: Common-Mode Voltage Level Up to 18V

Rev. 0 | Aug. 2022



This document is interactive. You can click on any underlined text to navigate through the document.

For the resources:

APPENDIX	<u>Parts Guide</u>
	<u>Power Requirements</u>

Left-click the Parts Guide and Power Requirements to go through the list of power devices and other references.

The Power Components are listed on the Appendix, and you may click on the part to go through its product page online.

PART #	DESCRIPTION
<u>LT3471</u>	Dual 1.3A, 1.2MHz Boost/Inverter in 3mm × 3mm DFN
<u>LT8604</u>	High Efficiency 42V/120mA Synchronous Buck
<u>LT8570-1</u>	Boost/SEPIC/Inverting DC/DC Converter with 65V Switch, Soft-Start and Sync.

For the individual pages:

Left-click the specific signal chain to go through its respective block diagram or power tree.

Non-isolated
<u>1-Channel</u>

POWER RE	
PARAMETER	
Supply Voltage	
Supply Current	
PSRR	

Precision Current Sensing

APPENDIX

[Parts Guide](#)

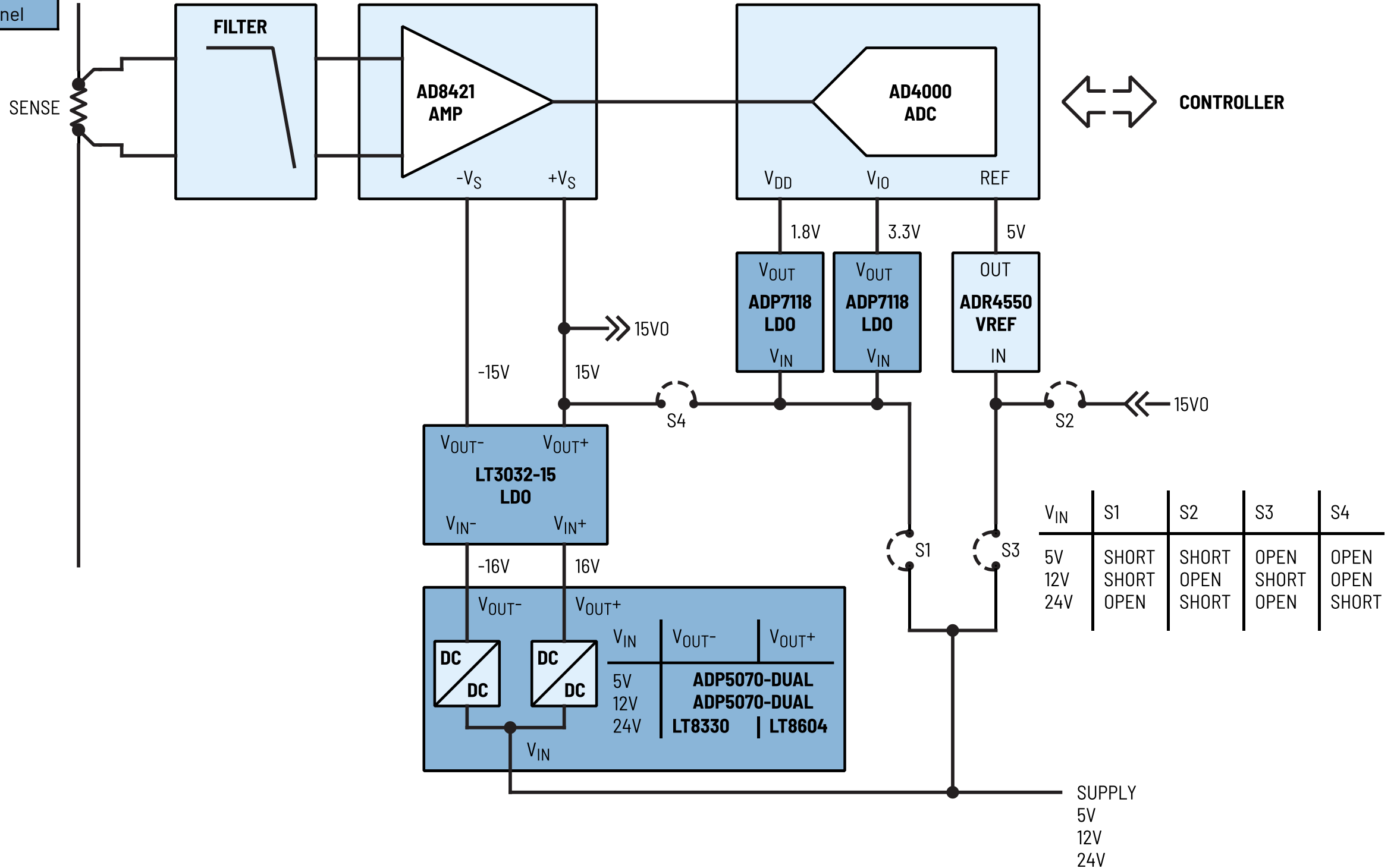
[USER GUIDE](#)

[Power Requirements](#)

Generic Signal Chain for Current Measurement

Shunt: Common-Mode Voltage Up to 18V

Non-isolated
1-Channel



Precision Current Sensing

Generic Signal Chain for Current Measurement

Shunt: Common-Mode Voltage Up to 18V

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1-Channel

PART #	DESCRIPTION
<u>ADP7118</u>	20 V, 200 mA, Low Noise, CMOS LDO Linear Regulator
<u>LT3032-15</u>	Dual 150mA Positive/Negative Low Noise Low Dropout Linear Regulator
<u>ADP5070</u>	1 A/0.6 A, DC-to-DC Switching Regulator with Independent Positive and Negative Outputs
<u>LT8330</u>	Low I_Q Boost/SEPIC/Inverting Converter with 1A, 60V Switch
<u>LT8604</u>	High Efficiency 42V/120mA Synchronous Buck

Non-isolated

1-Channel

POWER REQUIREMENTS

PARAMETER	STAGES	Instrumentation Amp		Filter	ADC		Reference
	Part #	AD8421		-	AD4000		ADR4550
	Pin	+V _S	-V _S		V _{DD}	V _{IO}	IN
Supply Voltage	V	15	-15	-	1.8	3.3	5.1 to 15
Supply Current	mA	2.6	2.6	-	5.4	0.15	0.95
PSRR	dB	20 (500kHz, G=1)	50 (500kHz, G=1)	-	65 (700kHz)		60 (1MHz)

Note 1: The supply currents indicated are the maximum quiescent current of the supply rails. For overall full load or short circuit current specifications, refer to the datasheets of the signal chain components.

Note 2: The supply voltages indicated are the values for typical applications.

Note 3: Consult the corresponding datasheets for details on: (1) power supply rejection ratio (PSRR) and (2) power dissipation.

Note 4: The actual supply current requirement shall be multiplied depending on the number of channels on the signal chain.