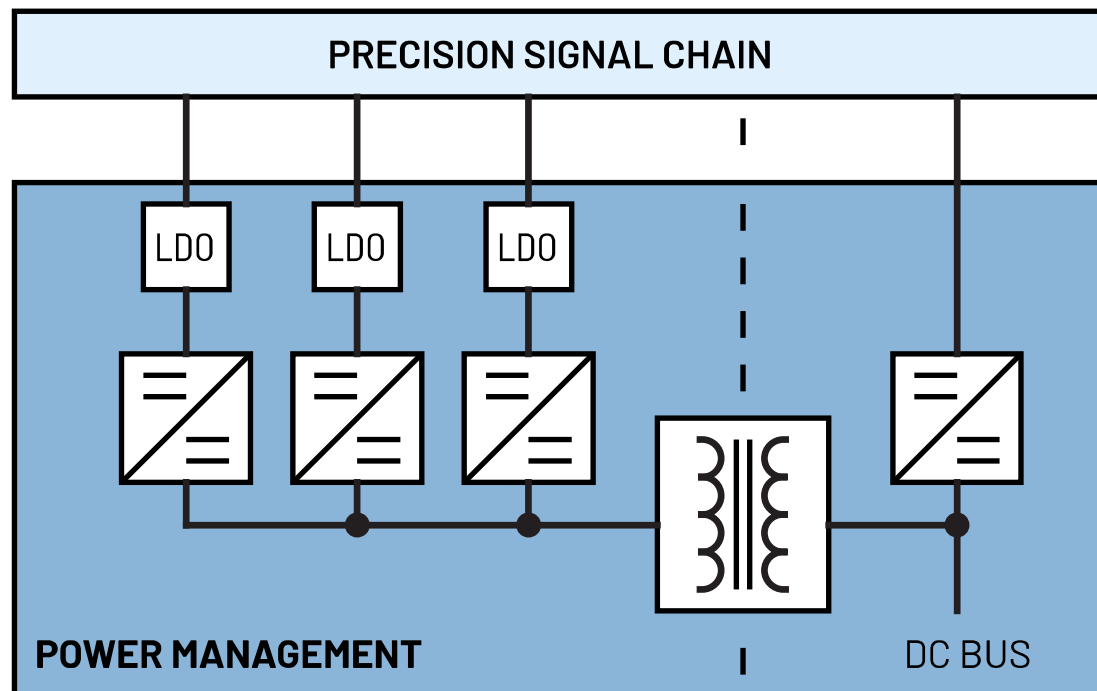


# POWER SOLUTIONS FOR PRECISION TECHNOLOGY SIGNAL CHAINS

PRECISION WIDE BANDWIDTH  
Current and Voltage Measurement  
Density Optimized

Rev. 0 | Jan. 2022



**USER GUIDE**

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<b>DENSITY OPTIMIZED</b>		
<b>CURRENT AND VOLTAGE MEASUREMENT</b>	Non-isolated	<a href="#"><u>1-Channel Signal Chain</u></a>
		<a href="#"><u>4-Channel Signal Chain</u></a>
		<a href="#"><u>8-Channel Signal Chain</u></a>
	Isolated	<a href="#"><u>1-Channel Signal Chain</u></a>
		<a href="#"><u>4-Channel Signal Chain</u></a>
		<a href="#"><u>8-Channel Signal Chain</u></a>

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<b>APPENDIX</b>	<a href="#"><u>Parts Guide</u></a>
	<a href="#"><u>Power Requirements</u></a>

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

For the table of contents and resources:

		POWER OPTIMIZED	
CURRENT AND VOLTAGE MEASUREMENT	Non-isolated	<a href="#">1-Channel Signal Chain</a>	Left-click the specific signal chain to go through its respective block diagram or power tree.
		<a href="#">4-Channel Signal Chain</a>	
		<a href="#">8-Channel Signal Chain</a>	
	Isolated	<a href="#">1-Channel Signal Chain</a>	
		<a href="#">4-Channel Signal Chain</a>	
		<a href="#">8-Channel Signal Chain</a>	

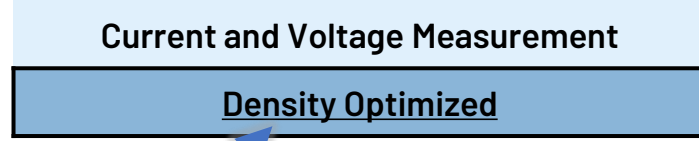
APPENDIX	<a href="#">Parts Guide</a>
	<a href="#">Power Requirements</a>

Left-click the appendix to go through the list of power devices and other references.

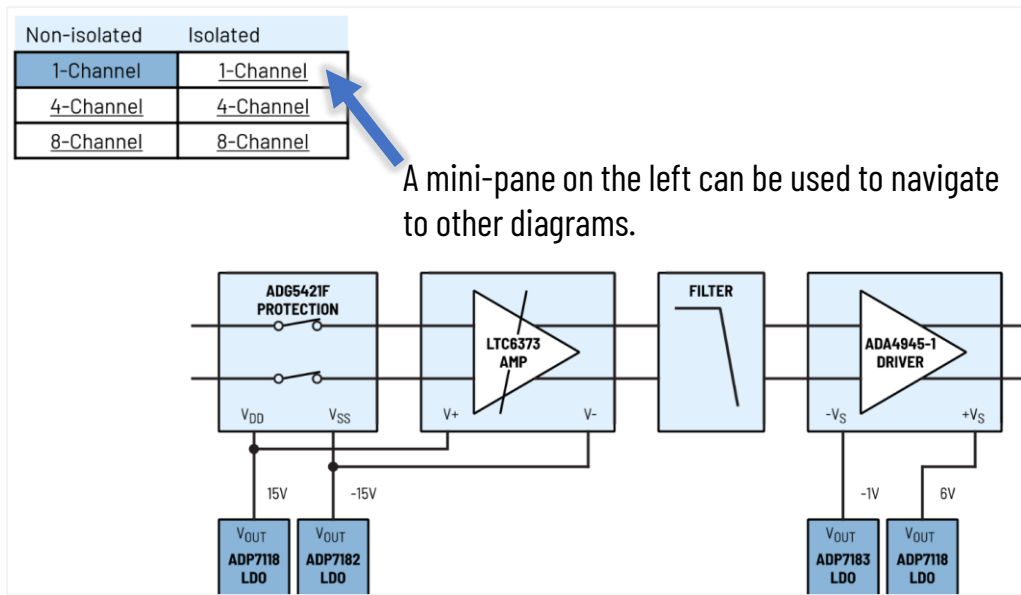
The Power Components are listed on the Appendix, and you may click on the part to go through its product page online.

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

For the individual pages:



Left-click the subcategory (in this case, **Density Optimized**) to return to the Table of Contents.



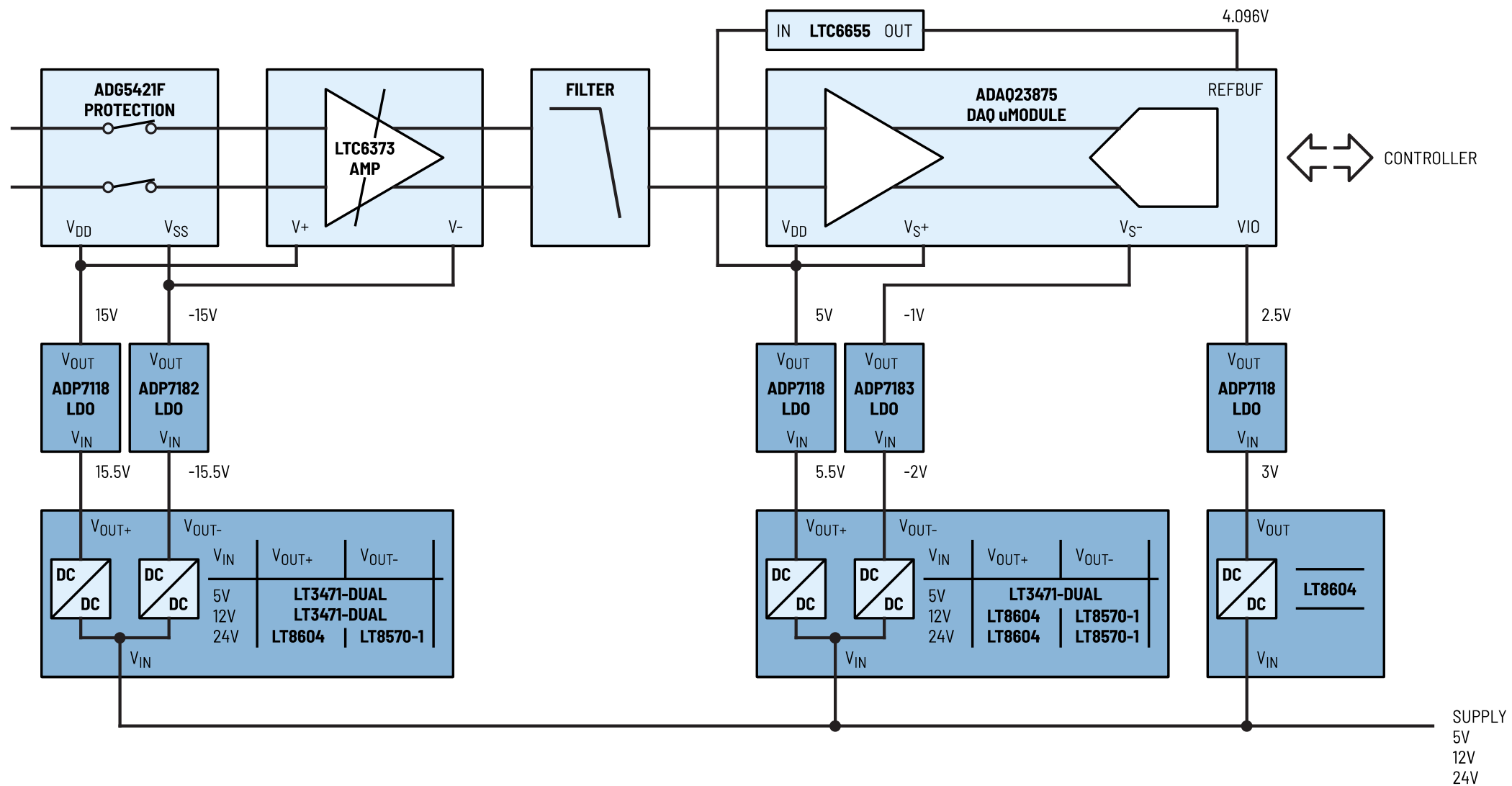
A mini-pane on the left can be used to navigate to other diagrams.

**Power Requirements**

**Current and Voltage Measurement**

**Density Optimized**

Non-isolated	Isolated
1-Channel	1-Channel
4-Channel	4-Channel
8-Channel	8-Channel

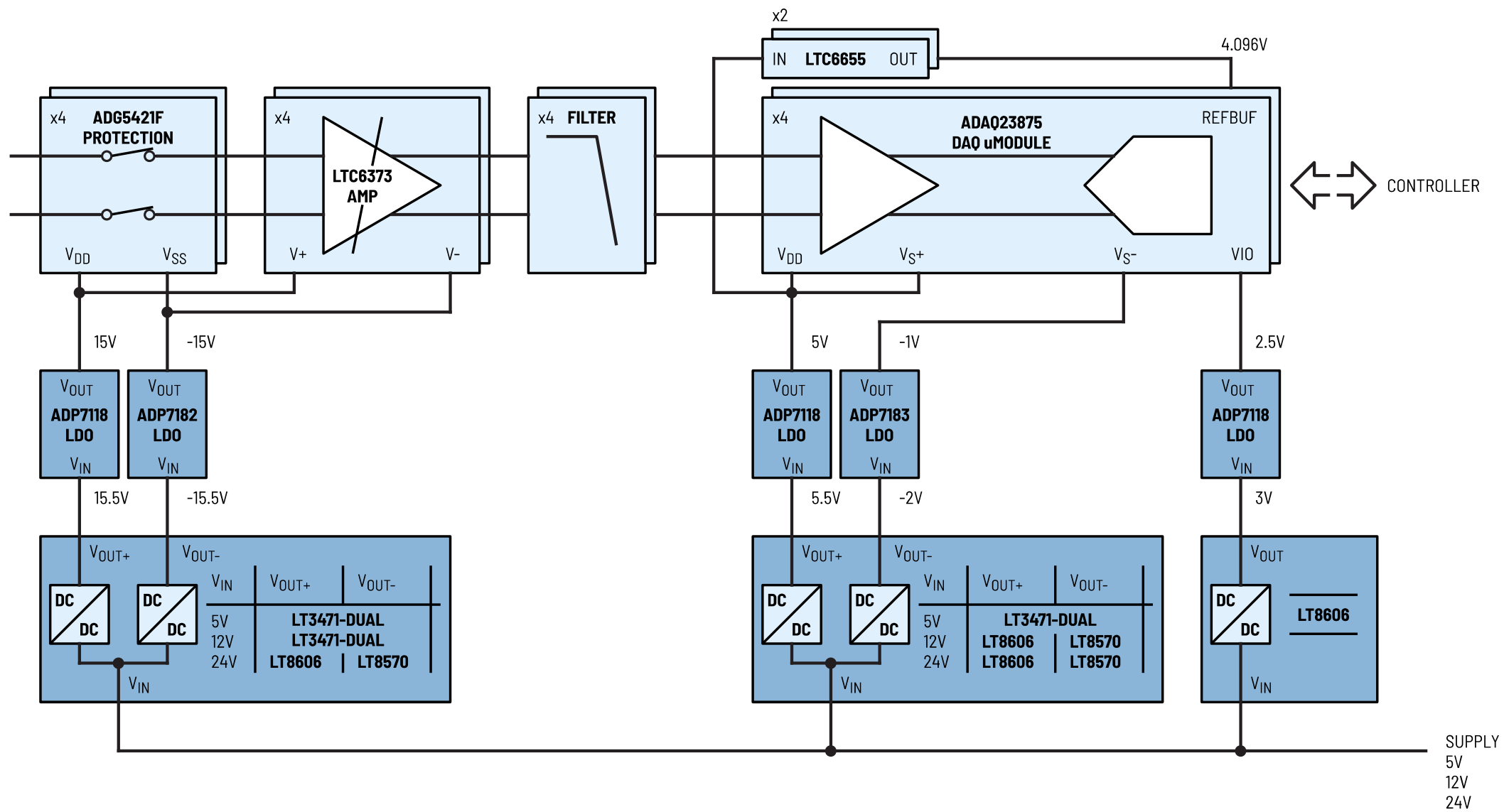


**Power Requirements**

**Current and Voltage Measurement**

**Density Optimized**

Non-isolated	Isolated
<u>1-Channel</u>	<u>1-Channel</u>
<u>4-Channel</u>	<u>4-Channel</u>
<u>8-Channel</u>	<u>8-Channel</u>

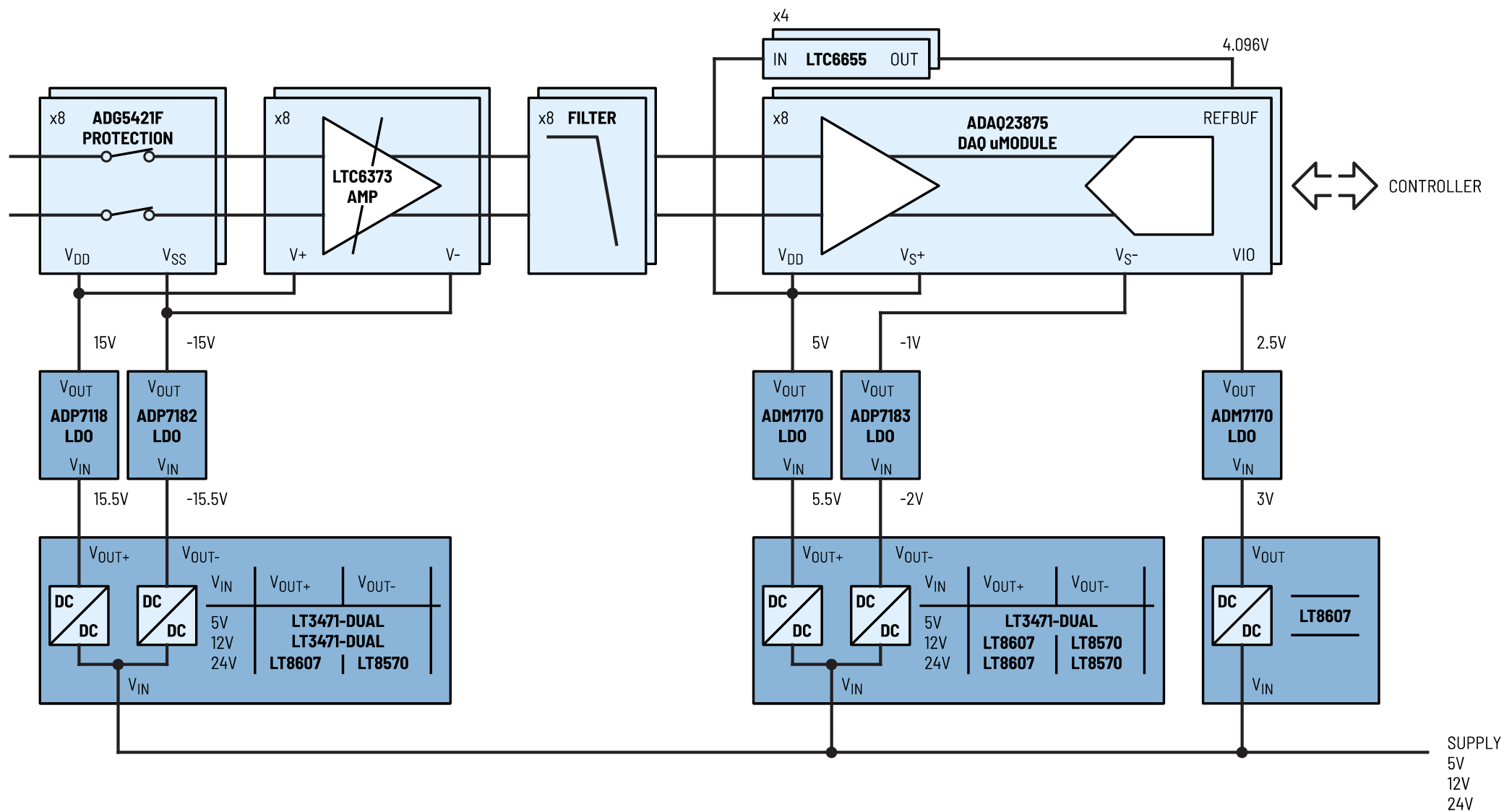


**Power Requirements**

Current and Voltage Measurement

Density Optimized

Non-isolated	Isolated
<u>1-Channel</u>	<u>1-Channel</u>
<u>4-Channel</u>	<u>4-Channel</u>
<u>8-Channel</u>	<u>8-Channel</u>

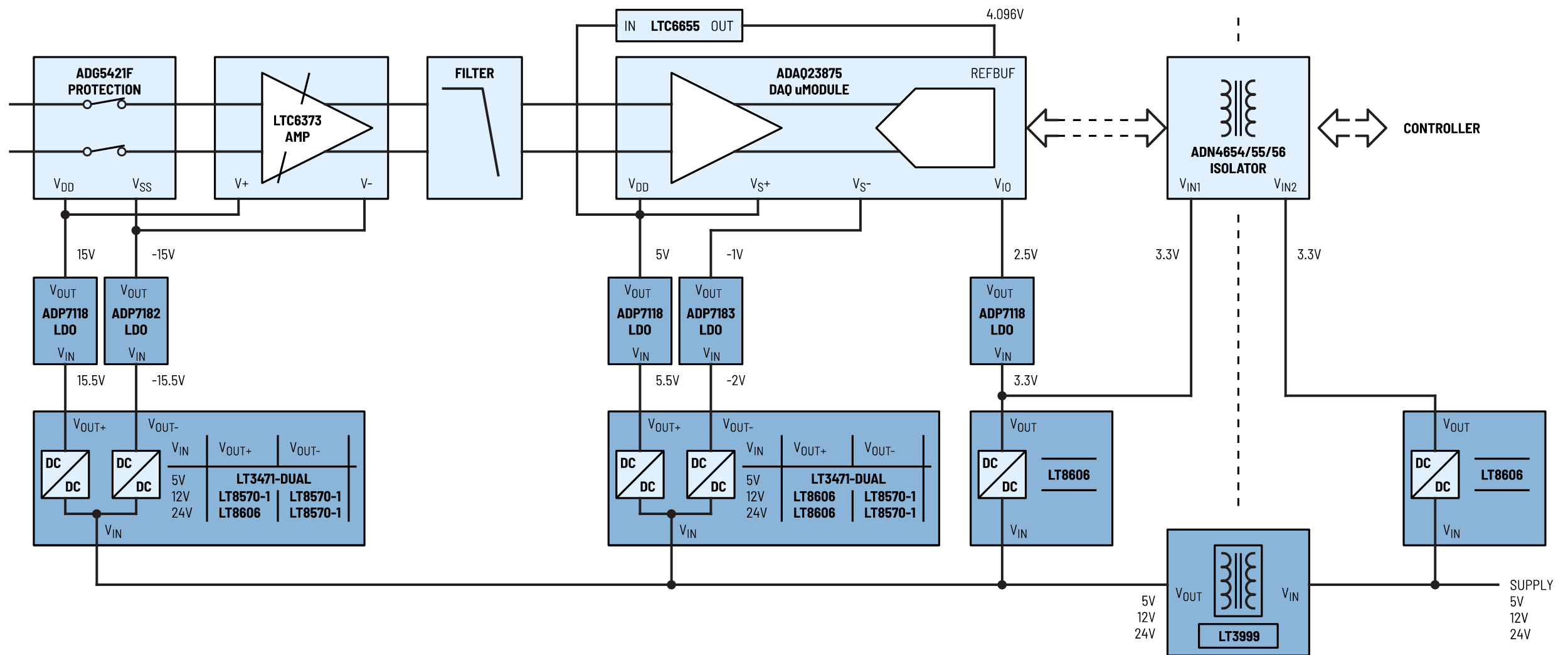


**Power Requirements**

**Current and Voltage Measurement**

**Density Optimized**

Non-isolated	Isolated
1-Channel	1-Channel
4-Channel	4-Channel
8-Channel	8-Channel

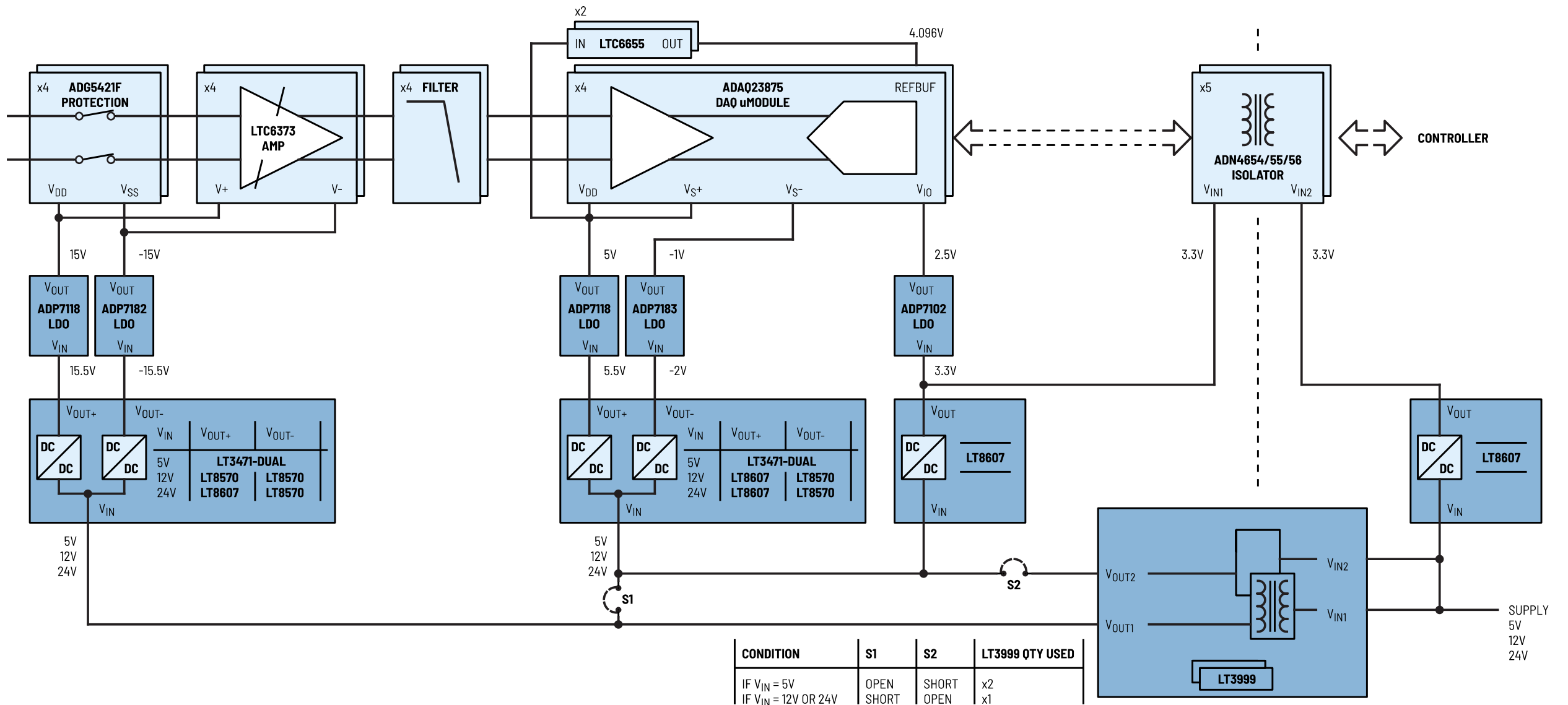


**Power Requirements**

**Current and Voltage Measurement**

**Density Optimized**

Non-isolated	Isolated
1-Channel	1-Channel
4-Channel	4-Channel
8-Channel	8-Channel



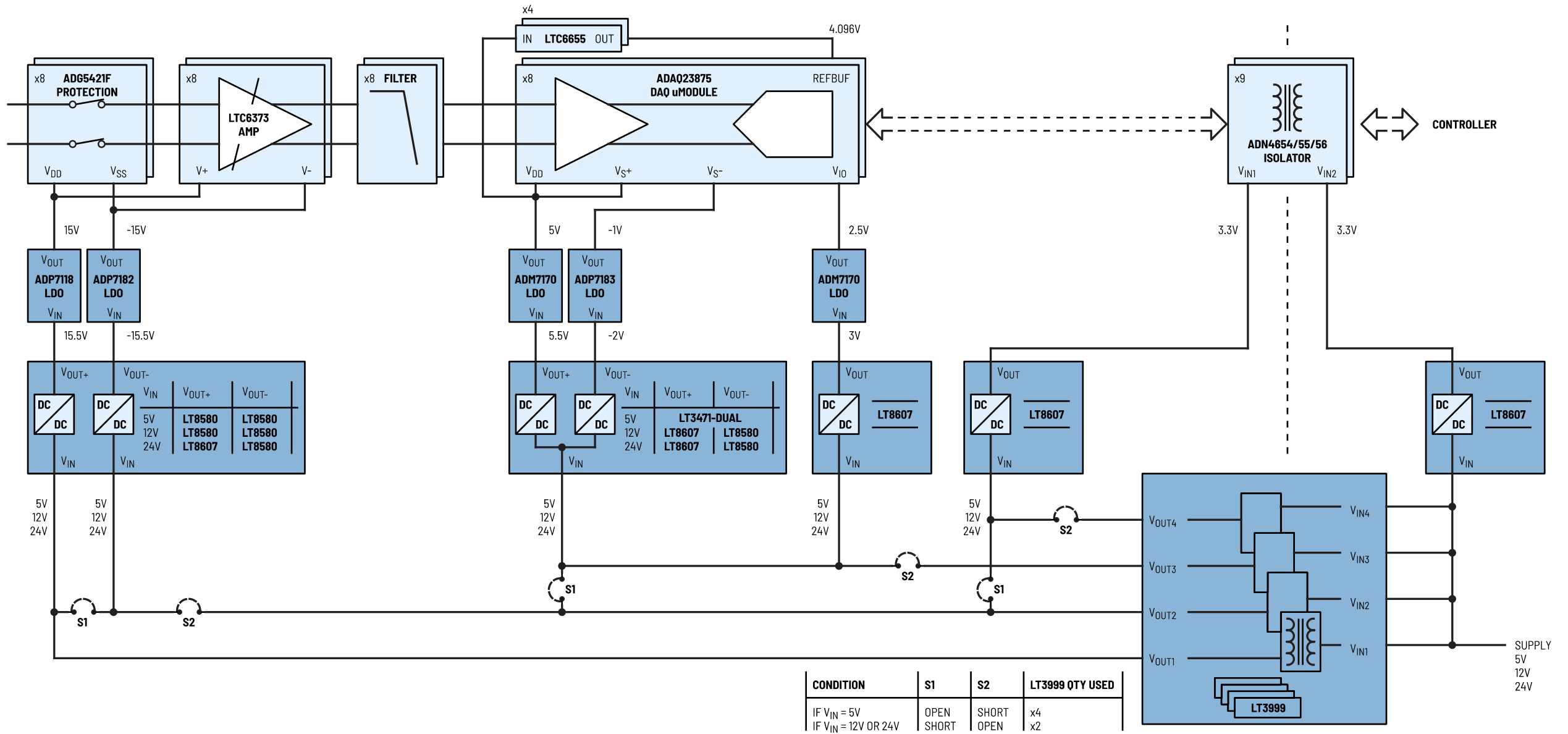


**Power Requirements**

**Current and Voltage Measurement**

**Density Optimized**

Non-isolated	Isolated
1-Channel	1-Channel
4-Channel	4-Channel
8-Channel	8-Channel



CONDITION	S1	S2	LT3999 QTY USED
IF $V_{IN} = 5V$	OPEN	SHORT	x4
IF $V_{IN} = 12V$ OR $24V$	SHORT	OPEN	x2

## Precision Wide Bandwidth

Current and Voltage Measurement

Density Optimized

PART #	DESCRIPTION
<b><u>LT3471</u></b>	Dual 1.3A, 1.2MHz Boost/Inverter in 3mm × 3mm DFN
<b><u>LT8604</u></b>	High Efficiency 42V/120mA Synchronous Buck
<b><u>LT8570-1</u></b>	Boost/SEPIC/Inverting DC/DC Converter with 65V Switch, Soft-Start and Sync.
<b><u>LT8606</u></b>	42V, 350mA Synchronous Step-Down Regulator with 2.5µA Quiescent Current
<b><u>LT8570</u></b>	Boost/SEPIC/Inverting DC/DC Converter with 65V Switch, Soft-Start and Sync.
<b><u>LT8607</u></b>	42V, 750mA Synchronous Step-Down Regulator with 2.5µA Quiescent Current
<b><u>LT8580</u></b>	Boost/SEPIC/Inverting DC/DC Converter with 1A, 65V Switch, Soft-Start and Sync.
<b><u>LT3999</u></b>	Low Noise, 1A, 1MHz Push-Pull DC/DC Driver with Duty Cycle Control
<b><u>ADP7118</u></b>	20V, 200mA, Low Noise, CMOS LDO Linear Regulator
<b><u>ADP7182</u></b>	-28V, -200mA, Low Noise, Linear Regulator
<b><u>ADP7183</u></b>	-300mA, Ultralow Noise, High PSRR, Low Dropout Linear Regulator
<b><u>ADM7170</u></b>	6.5V, 500mA, Ultralow Noise, High PSRR, Fast Transient Response CMOS LDO

## POWER REQUIREMENTS

PARAMETER	STAGES	Protection		Gain		Filter	ADC				Reference	Isolation	
	Part #	ADG5421F		LTC6373		-	ADAQ23875/23876/23878				LTC6655	ADN4654	
	Pin	V <sub>DD</sub>	V <sub>SS</sub>	V+	V-		+V <sub>S</sub>	-V <sub>S</sub>	V <sub>DD</sub>	V <sub>IO</sub>	IN	V <sub>DD1</sub>	V <sub>DD2</sub>
Supply Voltage	V	15	-15	15	-15	-	5	-1	5	2.5	5	3.3	3.3
Supply Current	mA	0.205	-0.115	5.25	-5.25	-	5.5	-5.5	5	42	1.8	80	80
PSRR	dB	90 (1MHz)		130 (G=1)		-	87 (100kHz)	92 (100kHz)	104 (100kHz)	-	40 (10kHz)	-75 (dBc)	

**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 power dissipation if needed.

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