



Voltage Amplifier Modules ... Both Precision and High Speed Amplifiers

Current to Voltage Converter Modules... Pico-Amp, Nano-Amp, Milli-Amp ... 1A, 10A/V, 100A/V

Transimpedance Amplifiers... Pico-Amp, Nano-Amp, Milli-Amp ... 1A, 10A/V, 100A/V

Constant Current Source / Sink Modules... $\pm 10\text{pA}$ to 125mA, 1A, 5A & 10A full range output modules

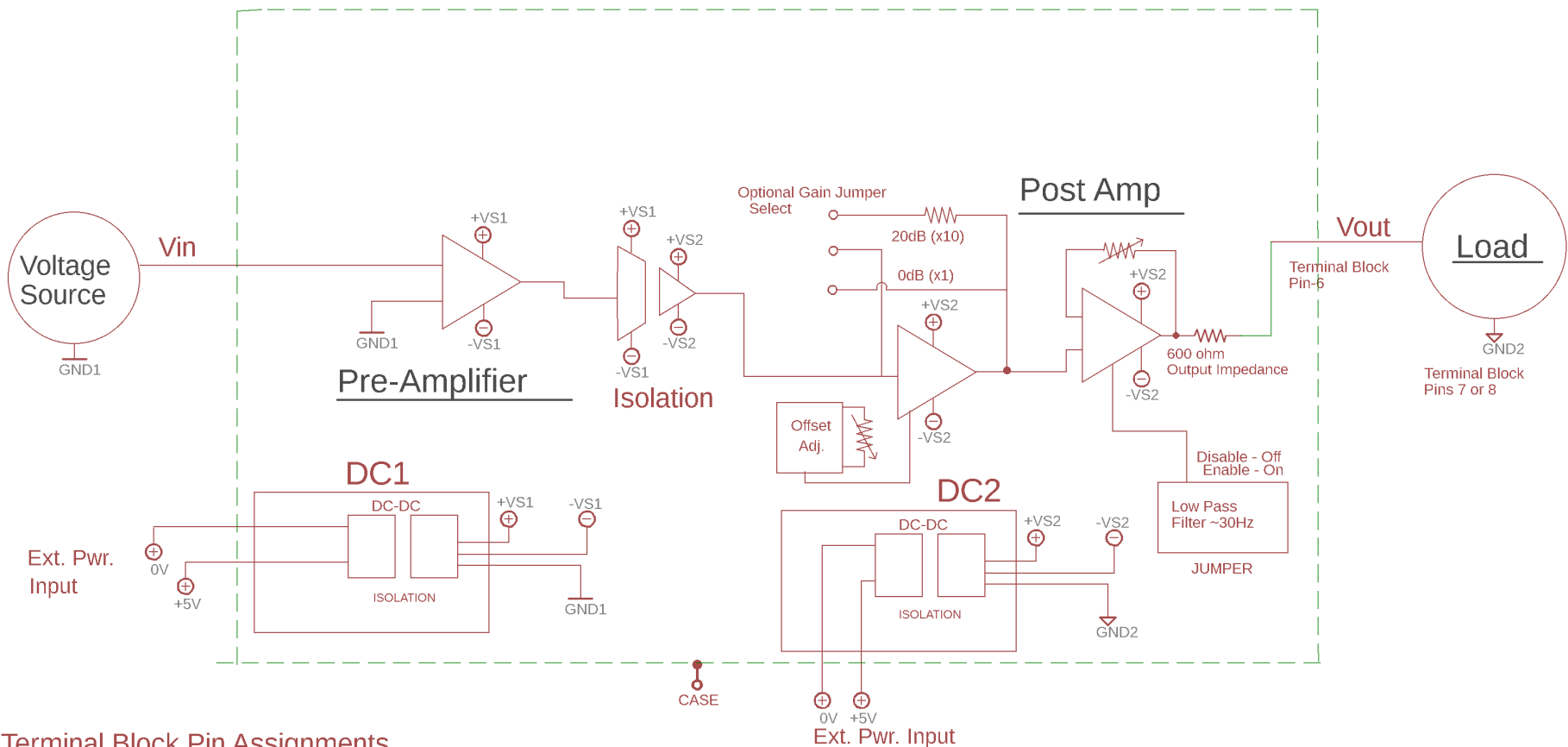
Voltage to Constant Current Converter Modules... $\pm 10\text{pA}$ to 125mA, 1A, 5A & 10A full range output modules

Precision Isolation Amplifiers

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DOCUMENTATION**

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Block Diagram - Precision Isolation Voltage Amplifier - Differential Input



Terminal Block Pin Assignments

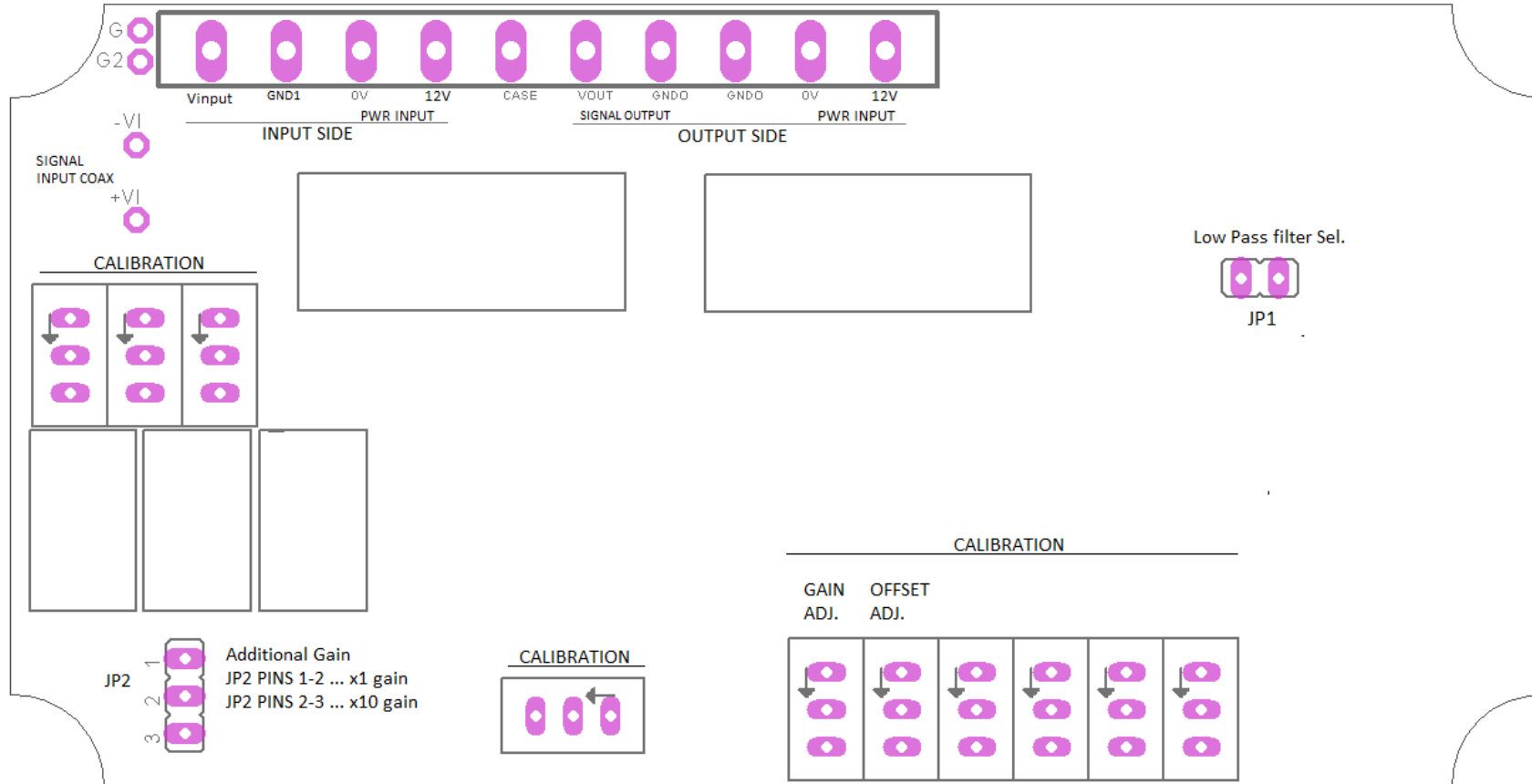
1	2	3	4	5	6	7	8	9	10
V_{in}	Gnd1	0V	12V	Case	V_{out}	Gnd2	Gnd2	0V	12V
Input Signal Pwr. In					Output Signal Pwr. In				
Input Side					Output Side				


TERM.BLK. Vout: 600 ohm Output Impedance

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TITLE: UTVMID-HV-Rev-1-0-Block Diagram	
Document Number:	REV: 1.0
Date: 6/28/2018 4:58 PM	Sheet: 1/1

Required VTVM-I power input(s): +10VDC to 14VDC

Module PCB diagram:



Specifications	Value	Unit	Specifications	Value	Unit
Max. Gain	20	dB	ESD Protection ... model ... 1T	4	KV
Min. Gain	0	dB	Power input Isolation	> 1500	V
Input voltage range	±100	V	Input capacitance typ.	1.5	pf
Output voltage range	±100	V	Input Current Noise ... models ... 30G, 1T (@ 1KHz)	< 200, < 2	fA / sqr(Hz)
Max. Load Current	±200	mA	Input Voltage Noise ... models ... 30G, 1T	< 5, < 20	nV / sqr(Hz)
Output Impedance	50	Ω	Output Voltage Noise	<10	uV / sqr(Hz)
Max. Output Voltage Drift (0 to 80 deg.C)	< 100	uV / deg.C	Freq. Response ... -3dB	50	KHz
Max. Input Offset Voltage Drift (0 to 80 deg.C)	< 100	uV / deg.C	Operating Temperature	-10 to 80	C
Max. Input Bias Current ... model ... 1T	<10	pA	DC Power connector	0.2" Term. Blk	male
Max. Input Bias Current ... model ... 30G	<500	pA	DC Supply Voltage	10 to 14	VDC
Input Impedance ... model ... 30G	~30	GΩ			
Input Impedance ... model ... 1T	>1	TΩ			
Input / Output Isolation ... @60Hz.	>1500	V	Required DC Supply Max. Current rating	1.0	A
Isolation Leakage @240Vac / 60Hz.	> 0.15	uA			
Isolation Non-Linearity	< 0.02	%			
Isolation diff. capacitive barrier	< 2	pf	Enclosure Details; (Will scale to application)		

Single Ended Input Gain / Offset Adjustment Procedure:

Required Conditions:

- 1.) Vtvm-I Module must have required DC power applied.
- 2.) Allow Vtvm-I module to warm up for at least 2-3 mins. Before continuing to the procedure.

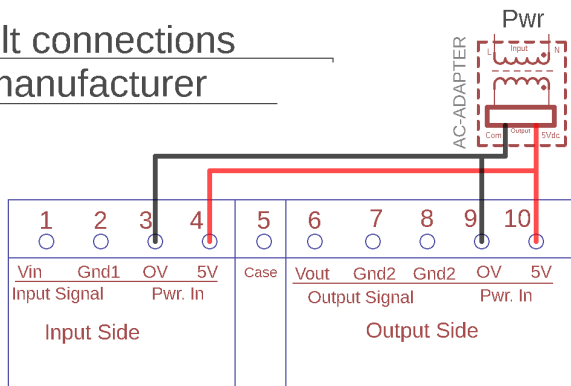
Procedure:

- 1.) Refer to the Gain Selection Jumper Settings Table and set the jumpers for the gain closest to your required value.
- 2.) Depending on your application either short the Vtvm-I input to Gnd-1 or set your voltage source to 0.0V and then connect to the Vtvm-I input. Adjust offset until the Vtvm-I output is approximately 0.000V.
- 3.) With a known voltage applied to the Vtvm-I module fine gain adjust the output voltage to the required value. For example, if you require a gain of 0dB (1.0x) and the input is 10V then adjust the gain until the output is 10V.

Note(s): you will probably have to repeat procedure steps 2 and 3 a couple of times to assure proper calibration. If one of the Gain adjustment potentiometers is set to one of the extreme top or bottom extents extremely high or low gain states can occur which may cause confusion when making sequential offset and gain adjustments. Also, we advise you adjust the gain using input voltages that are mid-range values. For example, if the desired gain is 20dB (x10) and the maximum output is 50V then apply 2.50V to the Vtvm-I input and adjust the gain so the Vtvm-I output is 25V. You can conversely do this using a -2.50V and -25V, respectively.

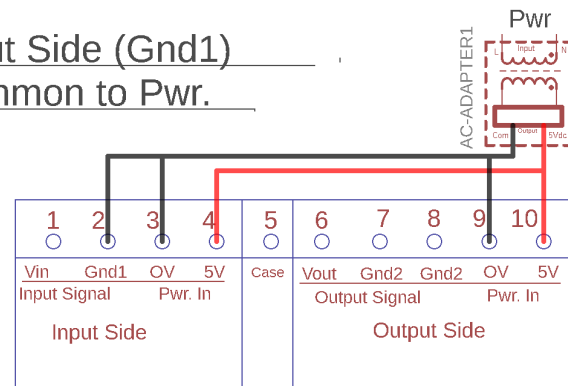
Noise Solution topologies for VTVM Series Power Input Isolation Amplifiers

Default connections from manufacturer



Terminal Block Pin Assignments

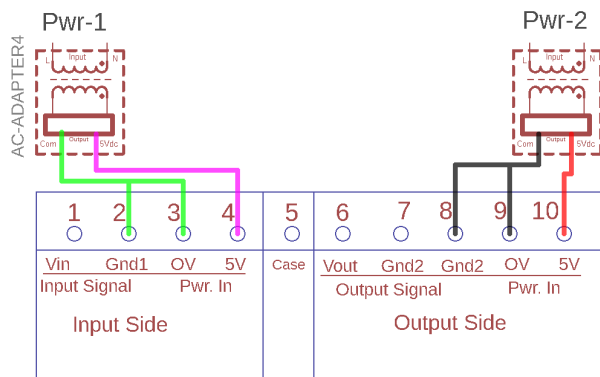
Input Side (Gnd1) Common to Pwr.



Terminal Block Pin Assignments

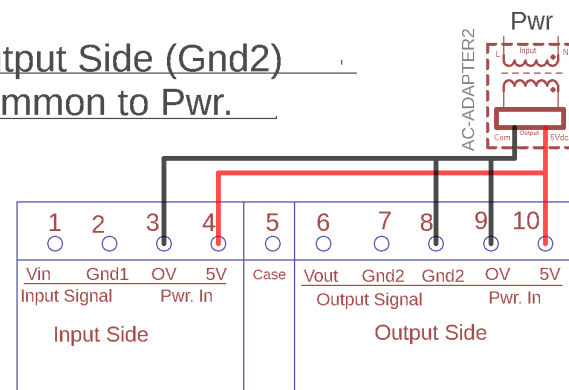
Independent/Isolated Power Sources:

Input side common to Pwr-1 & Output side common to Pwr-2



Terminal Block Pin Assignments

Output Side (Gnd2) Common to Pwr.



Terminal Block Pin Assignments

Notes:

- 1.) Not recommended to make Gnd-1 & Gnd-2 common.
- 2.) Not recommended to make Case common to both Gnd-1 & Gnd-2 .
- 3.) The input and output of the AC adapter must be completely isolated !

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TITLE: UTUMI-Noise-Solutions-rev-1-0

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Terminal Block Plug-In:
Part# OSTTJ105153 (Digikey) or
Part# 1757093 (Mouser)

Pluggable Terminal Blocks 10 Pos 5.08mm pitch Plug 24-12 AWG Screw

[LINK TO ENCLOSURE DETAILS:](#)

<http://www.rdm-apps.com/files/1590BBFL.pdf>

