Block Diagram – Precision Current to Voltage Module (CTVS)

CTVS Converter Module

Gain Select Jumpers
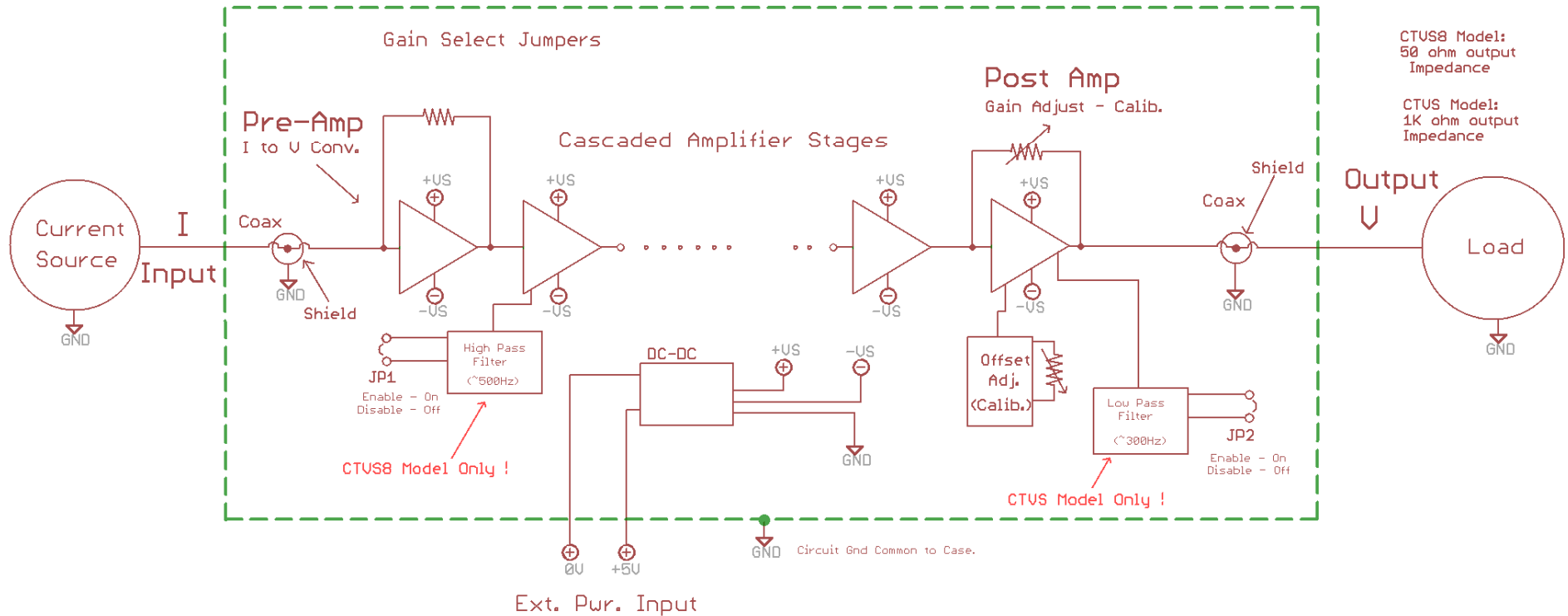
CTVS8 Model:
50 ohm output
Impedance

CTVS Model:
1K ohm output
Impedance

Post Amp
Gain Adjust – Calib.

Pre-Amp
I to V Conv.

Cascaded Amplifier Stages

Shield
Coax

Output
V

Current
Source

I

Input

Coax

+US   +US   +US   +US

GND

Shield

GND

Load

GND

GND

JP1

High Pass
Filter
(~500Hz)

DC-DC

+US   -US

Offset
Adj.
(Calib.)

Low Pass
Filter
(~300Hz)

JP2

Enable – On
Disable – Off

CTVS8 Model Only !

GND

Enable – On
Disable – Off

CTVS Model Only !

0V   +5V

GND Circuit Gnd Common to Case.

Ext. Pwr. Input

RDM-Apps   www.rdm-apps.com

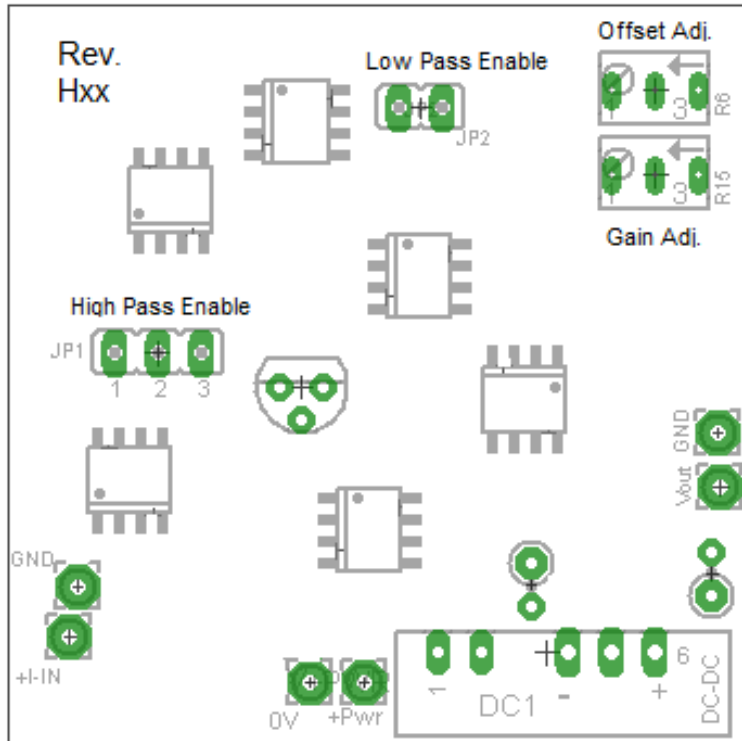TITLE: Ctvs-Block-Diagram-Hseries

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The CTVS PCB and connections from your current source to the CTVS input must be completely shielded! Insufficient shielding will increase the noise-signal ratio which will result in inaccurate CTVS output.

Required Ctvs power input range: +4.9 to +6.0VDC

High Pass filter Jumper Description(s):

JP1 Pins 1-2	Enable (~500Hz)
JP1 Pins 2-3	Disable

Low Pass filter Jumper Description(s):

JP2 **(ON)**	Enable (~30Hz)
JP2 (off)	Disable

(High Speed CTVS8 Model Only !)

Note: **Exclusively enable either the Low Pass or High Pass Filter …**
Enabling both High Pass & Low Pass filters will result in indeterminate output.

Continue to next page for Gain and offset adjustment procedure …

Gain / Offset Adjustment Procedure:
Required Conditions:
1.) Ctvs Module must have required DC power applied.
2.) Allow Ctvs module to warm up for at least 3 mins. Before continuing to the procedure.
Procedure:
1.) Connect your current source to the CTVS input. Set the current source to zero current out and then adjust R6 (offset) until the CTVS output is approximately 0V.
2.) With a known current applied to the CTVS input adjust R15 (Gain) until the output voltage corresponds to the applicable gain. For example, if 500pA is applied to the CTVS input and the desired gain is 100pA/V (Input/Output) then adjust R15 until the output is approximately 5V.

Note(s): you will probably have to repeat procedure steps 1 and 2 a couple of times to assure proper calibration. If the Gain adjustment potentiometer 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 an input current that is a mid-range value. For example, if the desired gain is 100pA/V (Input/Output) and the maximum output is 10V then apply 500pA to the CTVS input and adjust the gain so the CTVS output is 5V. You can conversely do this using a -500pA and -5V, respectively.