

RDM-Apps - CSE00GL-1000-xx & CSE00GL-2000-xx Constant Current Source / Sink Module.

Voltage to Current Converter Module. PCB Revs.7.xx

General Features:

- 85W Maximum Module Power Dissipation @ 135°F Maximum Recommended Module Operating Temperature
- Full scale Accuracy better than 0.1%
- Converts from input voltage to output constant current.
- Current Output Control:
 - a.) Option#1: $\pm 12\text{Vdc}$ input relative to applicable module full range current out.
 - b.) Option#2: Manual Trim-Potentiometer adjustment .
- Current output offset null & gain adjustment capability for calibration.
- Contact Higher Current Modules multi-range, multi-port or custom constant current modules / applications.
- Voltage Monitor Output relative to Constant Current Output.

- **We Recommend our GROUNDED LOAD modules for most all applications.**



Contact us for Modules with Higher Output Current or Higher Load Voltage requirements

[Module Selection Table \(10A to 10pA\) Constant Current Source / Sink Bidirectional Output Modules](#)

[Other Modules: Voltage Amplifiers, Current to Voltage Converters ...](#)

* Common for Most Applications

Full Size High Current Modules	Output Type	Current Output Range	Output Type	Required External Power Supply Input to CSExx module * Common for Most Applications	Max. Load Compliance Voltage
Cse00GL-1000-27V-19V	Grounded	$\pm 1.0\text{A}_{dc} / \pm 0.71\text{A}_{rms}$	Grounded	AC Adapter: +9V to +27V (Single Output)	$\pm 19\text{V}$
Cse00FL-1000-27V-19V	Floating	$\pm 1.0\text{A}_{dc} / \pm 0.71\text{A}_{rms}$	Floating	AC Adapter: +9V to +27V (Single Output)	$\pm 19\text{V}$
Cse00GL-1000-35V-30V	Grounded	$\pm 1.0\text{A}_{dc} / \pm 0.71\text{A}_{rms}$	Grounded	Bipolar Power Supply: $\pm 24\text{V}$ to $\pm 35\text{V}$ (Dual Output)	$\pm 30\text{V}$
Cse00FL-1000-35V-30V	Floating	$\pm 1.0\text{A}_{dc} / \pm 0.71\text{A}_{rms}$	Floating	Bipolar Power Supply: $\pm 24\text{V}$ to $\pm 35\text{V}$ (Dual Output)	$\pm 30\text{V}$
Cse00GL-2000-35V-30V	Grounded	$\pm 2.0\text{A}_{dc} / \pm 1.42\text{A}_{rms}$	Grounded	Bipolar Power Supply: $\pm 24\text{V}$ to $\pm 35\text{V}$ (Dual Output)	$\pm 30\text{V}$
Cse00FL-2000-35V-30V	Floating	$\pm 2.0\text{A}_{dc} / \pm 1.42\text{A}_{rms}$	Floating	Bipolar Power Supply: $\pm 24\text{V}$ to $\pm 35\text{V}$ (Dual Output)	$\pm 30\text{V}$

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CSE00GL-1000-27V-19V (internally generates $\pm 24\text{Vdc}$ using external $+9\text{Vdc}$ to $+27\text{Vdc}$ AC Adapter)

Max. Load Current Values -- Max. Load Voltage vs. Load Impedance --

Pwr. Supply	Max. Output Load Voltage	0.1 Ω	1.0 Ω	10 Ω	20 Ω	40 Ω	60 Ω	80 Ω	100 Ω		
$\pm 24\text{V}$	$\pm 19.5\text{V}$	1.00A	1.00A	1.00A	0.98A	0.49A	0.33A	0.26A	0.21A		

CSE00GL-1000-35V-30V (Requires external bipolar $\pm 24\text{Vdc}$ to $\pm 35\text{Vdc}$ power supply)

Max. Load Current Values -- Max. Load Voltage vs. Load Impedance --

Pwr. Supply	Max. Output Load Voltage	0.1 Ω	1.0 Ω	10 Ω	20 Ω	30 Ω	50 Ω	100 Ω		
$\pm 40\text{V}$	$\pm 34\text{V}$	1.00A	1.00A	1.00A	1.00A	1.00A	0.70A	0.30A		

CSE00GL-2000-35V-30V (Requires external bipolar $\pm 24\text{Vdc}$ to $\pm 35\text{Vdc}$ power supply)

Max. Load Current Values -- Max. Load Voltage vs. Load Impedance --

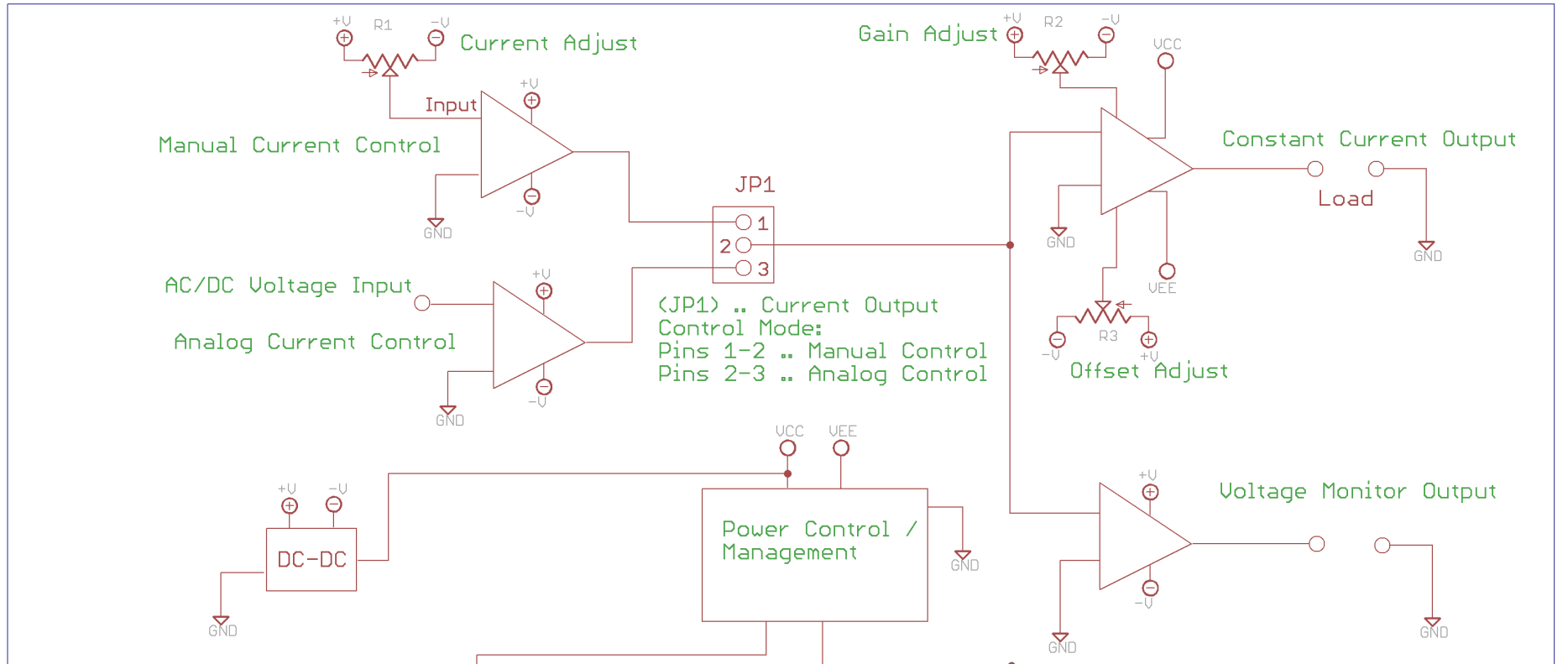
Pwr. Supply	Max. Output Load Voltage	0.1 Ω	1.0 Ω	10 Ω	20 Ω	30 Ω	50 Ω	100 Ω		
$\pm 40\text{V}$	$\pm 34\text{V}$	2.00A	2.00A	2.00A	1.70A	1.10A	0.70A	0.30A		

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Block Diagram

< Constant Current Generator / Voltage to Current Converter Module >



(JP1) .. Current Output Control Mode:
Pins 1-2 .. Manual Control
Pins 2-3 .. Analog Control

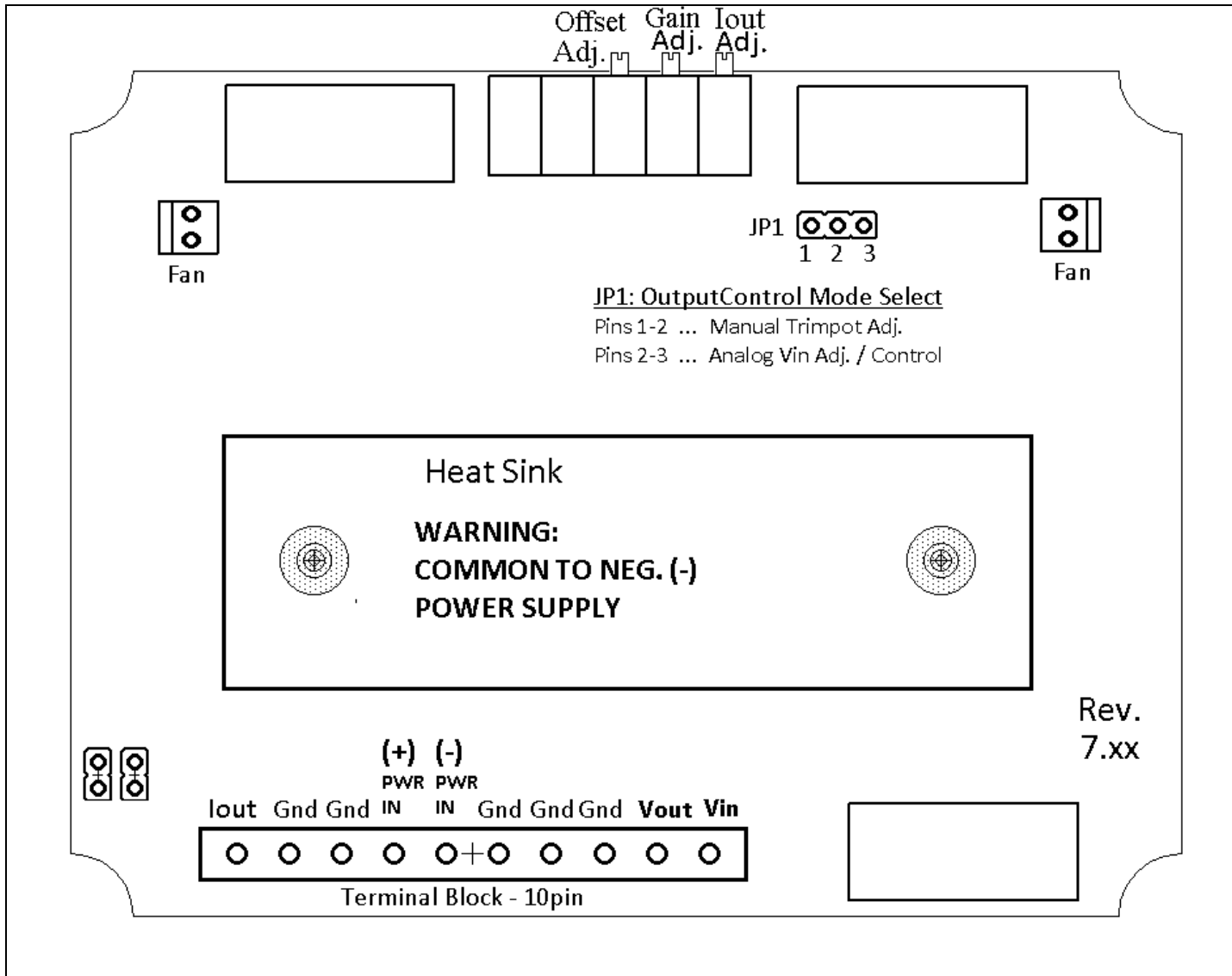
Refer to Power Supply Requirements within the Model Selection guide.

External Bipolar Power Supply

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TITLE: CSE00-Module Block Diagram-2	
Document Number:	REV: 2.0
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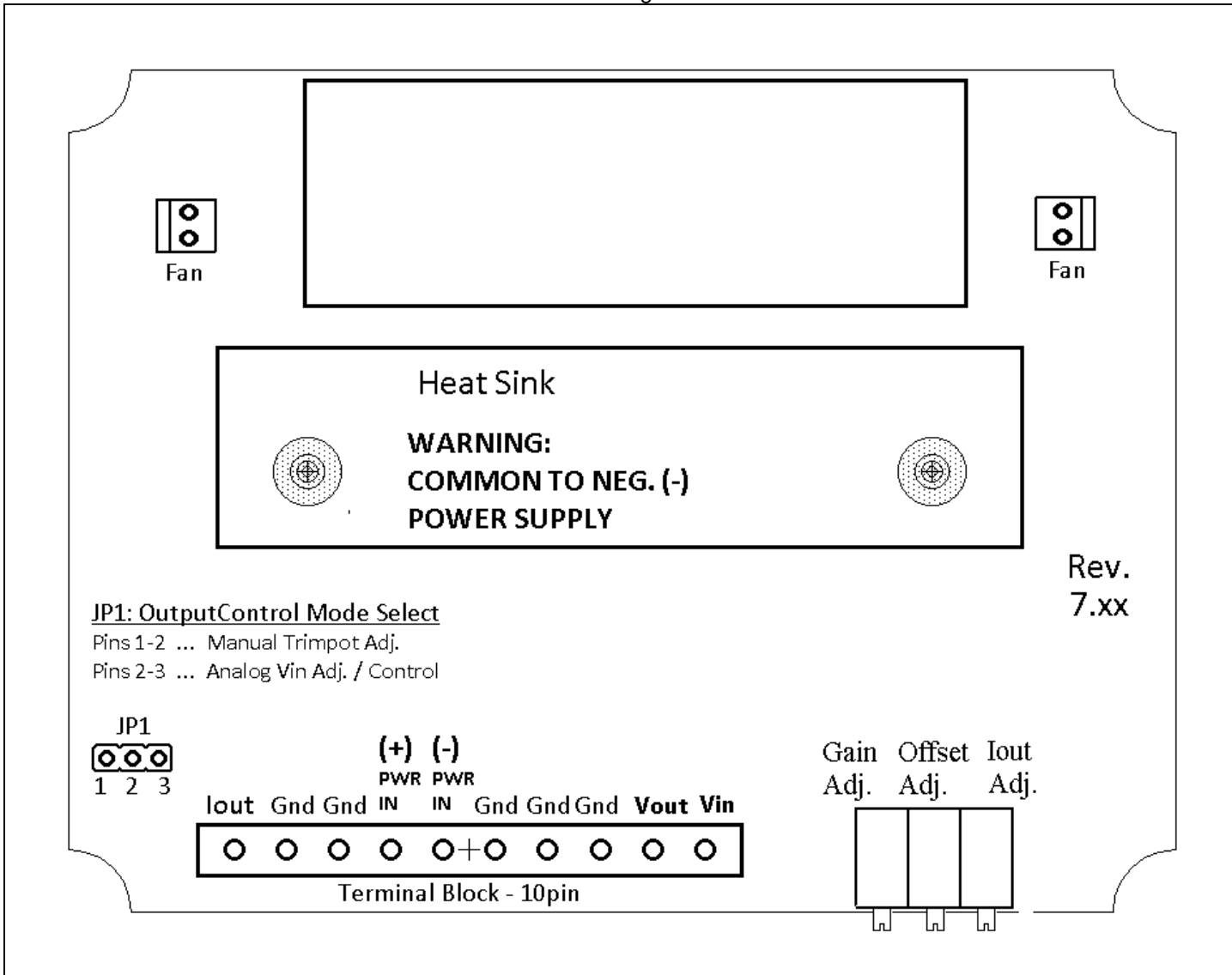
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PCB Layout ... CSE00xx-1000-35V-30V & CSE00xx-2000-35V-30V

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PCB Layout ... CSE00xx-1000-27V-19V

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Specifications				
Desc.	CSE00xx-1000-27V-19V	CSE00xx-1000-35V-30V	CSE00xx-2000-35V-30V	Unit
Current Output Full Range	±1000	±1000	±2000	mA
Current Output vs. Voltage Input (Iout / V)	±100.0	±100.0	±200.0	mA / V
Current Output vs. Voltage Monitor Output	±100.0	±100.0	±200.0	mA / V
Current Output Accuracy; (@ 25C ±5C) ... Better than	0.1	0.1	0.1	%
Frequency Response (-3dB): ... Better Than Conditions: 0 < Load impedance < 1.0Ω; L < 2uH; C < 1uF	50	50	50	KHz
Current Out Adj. Resolution; Manual Control Mode	1.0	1.0	1.0	mA
Current Out Adj. Resolution; Voltage Control Mode; Better than	0.1	0.1	0.1	mA
Voltage Monitor Output: Noise	50.0	50.0	50.0	uVp-p
Voltage Monitor Output: Impedance	600	600	600	ohm
Voltage Monitor Output: Max. load current	±10.0	±10.0	±10.0	mA
Enclosure Dimensions (L x W x H)				cm

Gain / Offset Calibration Procedure:

Required equipment:

- 1.) An accurate ±10vdc voltage source.
- 2.) A current meter with accuracy better than 0.1% of the CSE full current range output.

Required Conditions:

- 1.) CSE Module must be jumpered for Analog Voltage Control Mode (JP1 pins 2-3).
- 2.) CSE Module must have required DC power applied.
- 3.) Connect voltage source to CSE module voltage input (Vin) connector.
- 4.) Connect current meter to the applicable CSE module current output (Iout) connector.
- 5.) Allow CSE module to warm up for at least 3 mins. Before continuing to the procedure.

Procedure exclusively for Grounded or Floating current outputs:

- 1.) Use your voltage source to apply 0.000V to the CSE voltage input (Vin) connector. Adjust "OFFSET" trim-pot until the CSE module current output (current meter) reads zero amps ... within 0.1% of the CSE full range output.
- 2.) Apply +5VDC to the CSE voltage input and adjust "GAIN" trim-pot to the required output current. For example, if your CSE module has a full range output of ±1000mA and the Vin / Iout (Input / Output) ratio is 1V/100mA then the current output should be +500mA. Conversely , a -5VDC input should result in a -500mA output.

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 input voltages that are mid-range values.

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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