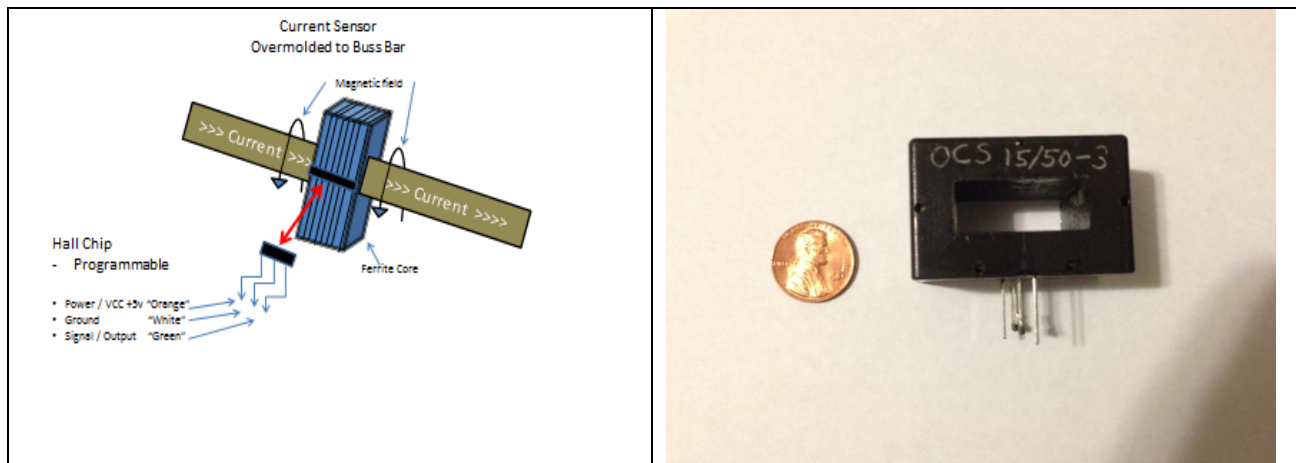


OLH +/-1,500A - 50A AC/DC Current Sensor

High precision Non-contacting “Pass-through” AC/DC Current Sensor with very low temperature drift

Features and Benefits

- Low Hysteresis
- Extremely Low noise
- Overmolded sealed design
- Noncontact measurement
- Bidirectional and Unidirectional Options available
- Ratiometric Analog output (Sensitivity and Offset)
- Undervoltage Lockout
- -40C – 85C (-40C to 150C version available)



Note: Buss bar not included in sensor cost but can be insert molded on consignment.

Connection Table:

Wire color	Name	Function
Red	PWR (Vcc)	5V Input from Power Supply
Black	GND	Ground
Green	Vout	Analog output voltage

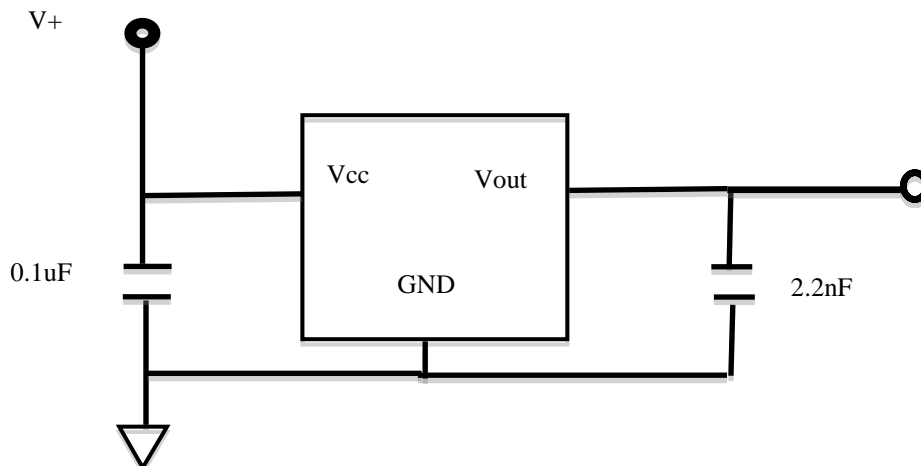
Absolute Maximum Ratings:

Characteristic	Symbol	Note	Rating	Unit
Forward Supply Voltage	Vcc		6.5	V
Reverse Supply Voltage	Vrcc		-0.1	V
Forward Output Voltage	Vout		25	V
Reverse Output Voltage	Vrout		-0.1	V
Output Source Current	Iout (source)	Vout to GND	3	mA
Output Sink Current	Iout (sink)	Vcc to Vout	10	mA
Operating Ambient Temperature	Ta		-40 to 105	C
Storage Temperature	Tstg		-40 to 125	C

Operating Characteristics: C_{bypass}= 0.1uF

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Voltage	V _{cc}		4.5	5	5.5	V
Supply Current	I _{cc}		-	10	15	mA
Power on time	T _{po}	T _A = 25°C,	-	45	-	uS
Supply Zener Clamp	V _z	T _a = 25C, I _{cc} = 18mA	6	7.1	-	V
Input Range	I _{in} (50)		-50	-	50	A
	I _{in} (15)		-1500		1500	A
Voltage swing	V _o		0.5	-	4.5	V
Offset Volatge	V _{off}	Zero current output voltage	-	2.5	-	V
Sensitivity 1,500A	S ₁₅		-	1.33	-	mV/A
Sensitivity 50A	S ₅₀			40.0		mV/A
Bandwidth	BW	Small signal -3 dB, C _L = 1 nF, T _A = 25°C	-	120	-	kHz
Under voltage Lockout	V _{uvlo}		-	4	-	V
Response time	T _{resp}	0% to 90%	-	-	8	uS
Output Voltage Clamp	V _{clp_H}	T _A = 25°C, R _{LOAD} = 10 kΩ to GND	4.45	-	4.85	V
	V _{clp_L}	T _A = 25°C, R _{LOAD} = 10 kΩ to V _{cc}	0.15	-	0.45	V
Broken Wire Voltage	V _{brk_H}	T _A = 25°C, R _{LOAD} = 10 kΩ to V _{cc}	-	V _{cc}	-	V
	V _{brk_L}	T _A = 25°C, R _{LOAD} = 10 kΩ to GND	-	100	-	mV
Noise	V _n	T _A = 25°C, C _L =1nF	-	6	-	mV _{pp}
DC output resistance	R _{out}		-	<9	-	Ω
Output Load Resistance	R _{load}	Pull-up or pull down	4.7	-	-	kΩ
Output Load Capacitance	C _l	V _{out} to GND	-	1	10	nF
Output Slew Rate	S _r	C _L = 1 nF	-	230	-	V/mS
Offset Drift	V _{dr}	-40°C to 125°C	-30	-	30	mV
Sensitivity drift	S _{dr}	-40°C to 125°C	-	1	-	%
Linearity	E _{lin}		-	<±0.25	-	%
Symmetry Error	E _{sym}		-	<±0.25	-	%
Total Error	Err _R	Room	-	0.5	-	%
Total error	Err	40°C to 125°C	-2	-	2	%

Fig-1: Internal Circuit (pigtail or connector version only, leaded device does not have capacitors)



Ordering Information:

Current Range (A)	Part Number
+/-1,500 & 50	OCS- 15/50

Note: Unidirectional available upon request

Calculating Current:

Using equation-1 below, you can calculate the current being passed through the device.

Fig-2: Equation-1

$I_p = \frac{(V_{out} - V_o).mV}{S}$	<p>Where:</p> <p>I_p = Primary current passed through the device.</p> <p>V = Output voltage of sensor</p> <p>V_o = Offset voltage</p> <p>S = Sensitivity (gain)</p>
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Figure-3A: Ideal Output Transfer Function (both sensor):

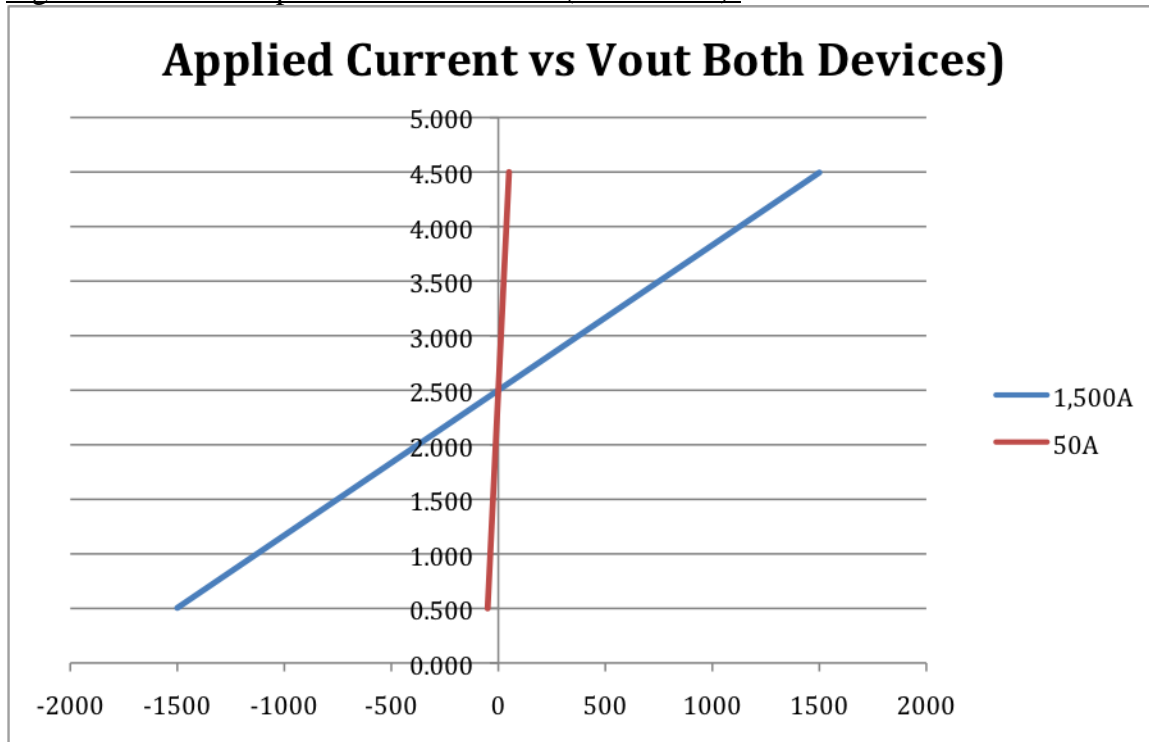
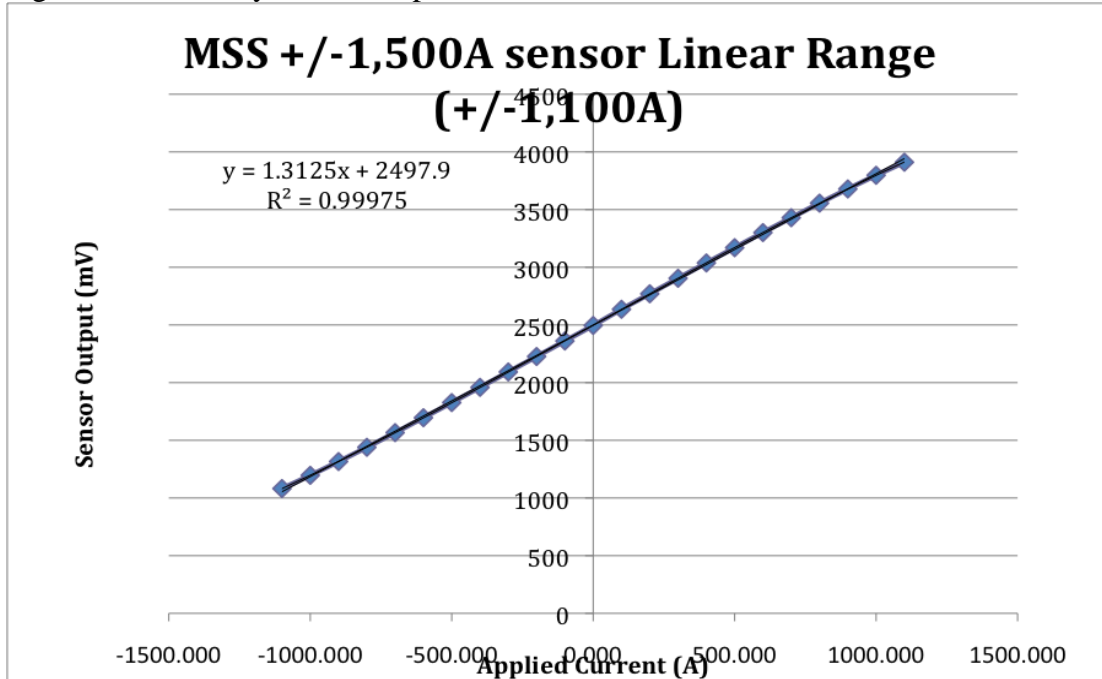
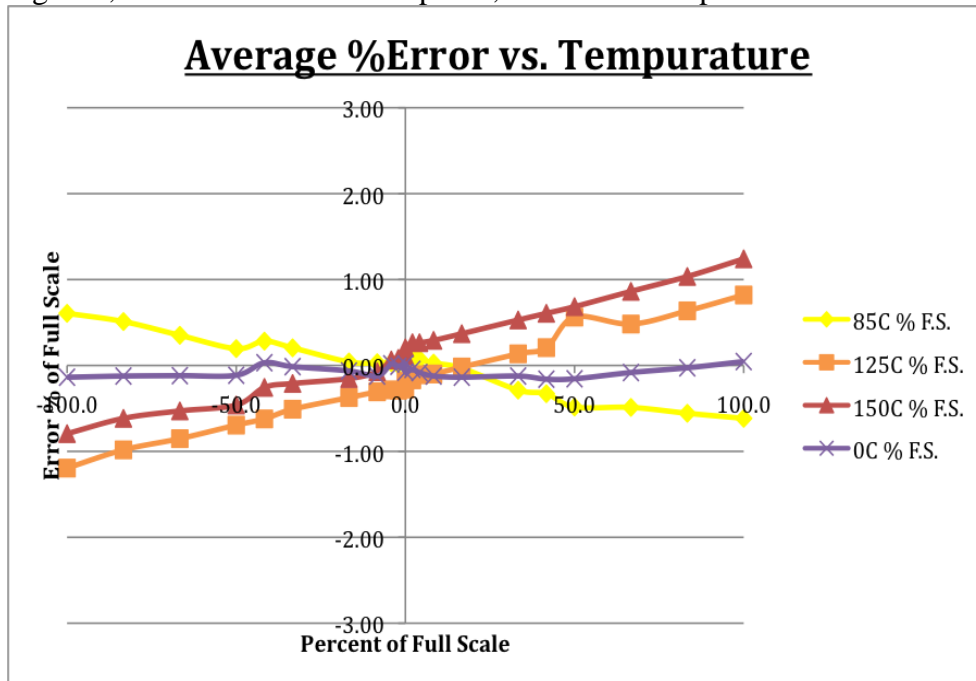


Figure 3B: Linearity to 1,100A point



Error Plot:

Fig-4: 1,500A sensor in %F.S Up to 1,000A Over temperature



Error Plot:

Fig-5A: 1,500A sensor in %F.S Up to 1,500A at room temperature (with 3rd order fit)

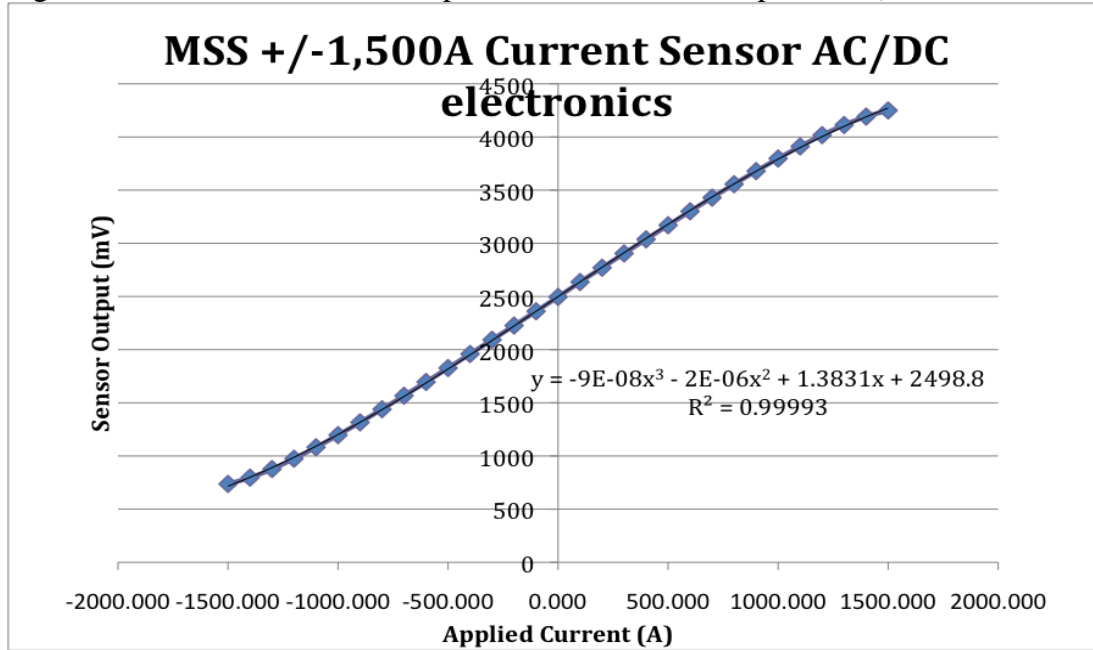
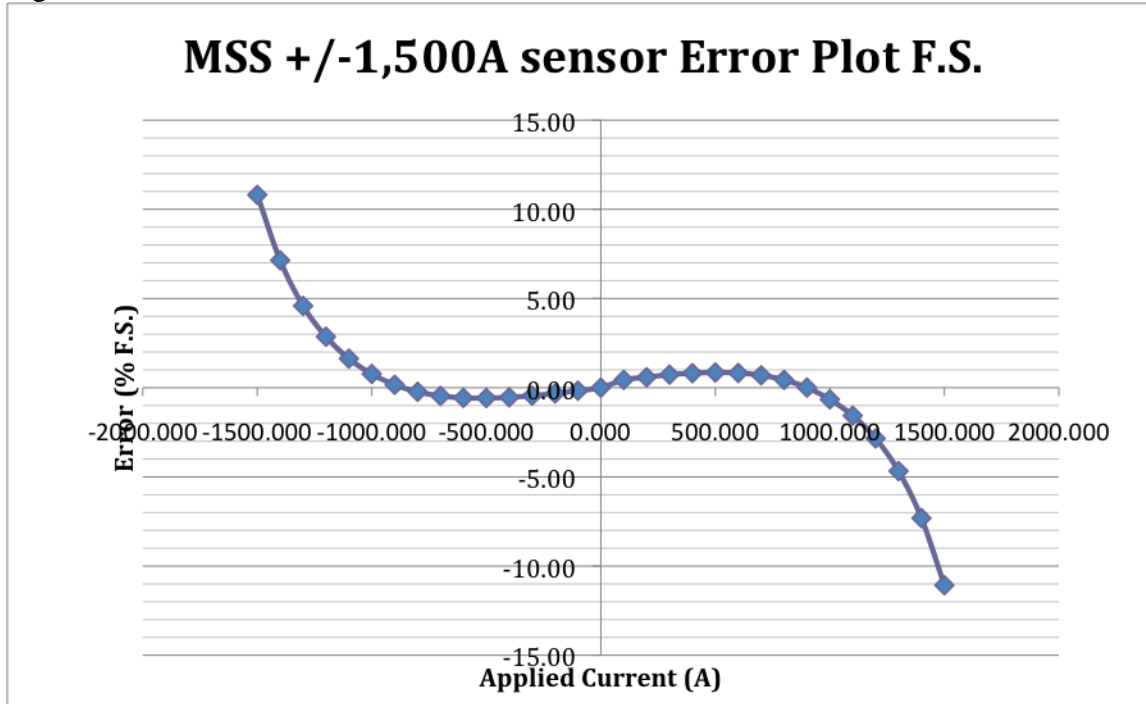


Fig-5B: 1,500A sensor Error Plot



Outer Dimensions of Sensor:

Dimension	Value	Units	Value	Units	Note
W (Width) =	43.80	mm	1.709	in	
H (Height) =	27.93	mm	1.084	in	
D (Depth) =	27.0	mm	1.063	in	
BBSH (Bus Bar Slot Width) =	9.93	mm	0.391	in	Max
BBSW (Bus Bar Slot Height) =	25.80	mm	1.016	in	Max

Note: Slot can accept a 3/4" wide Bus Bar size from 1/16" to 1/4" thick. Opening is molded to fit eliminating need for mounting tabs.

Fig-6: General outside dimensions

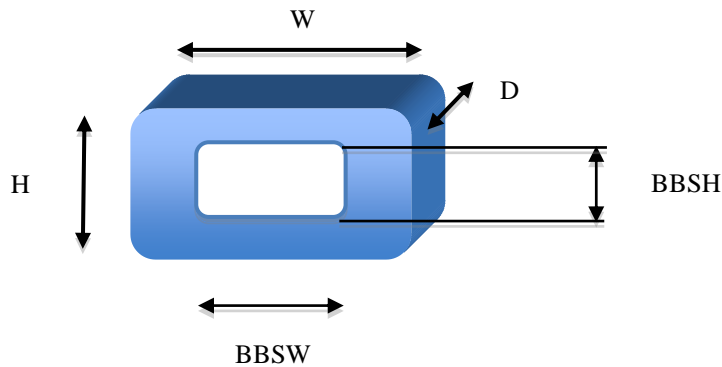


Fig-7: Sensor Bottom View

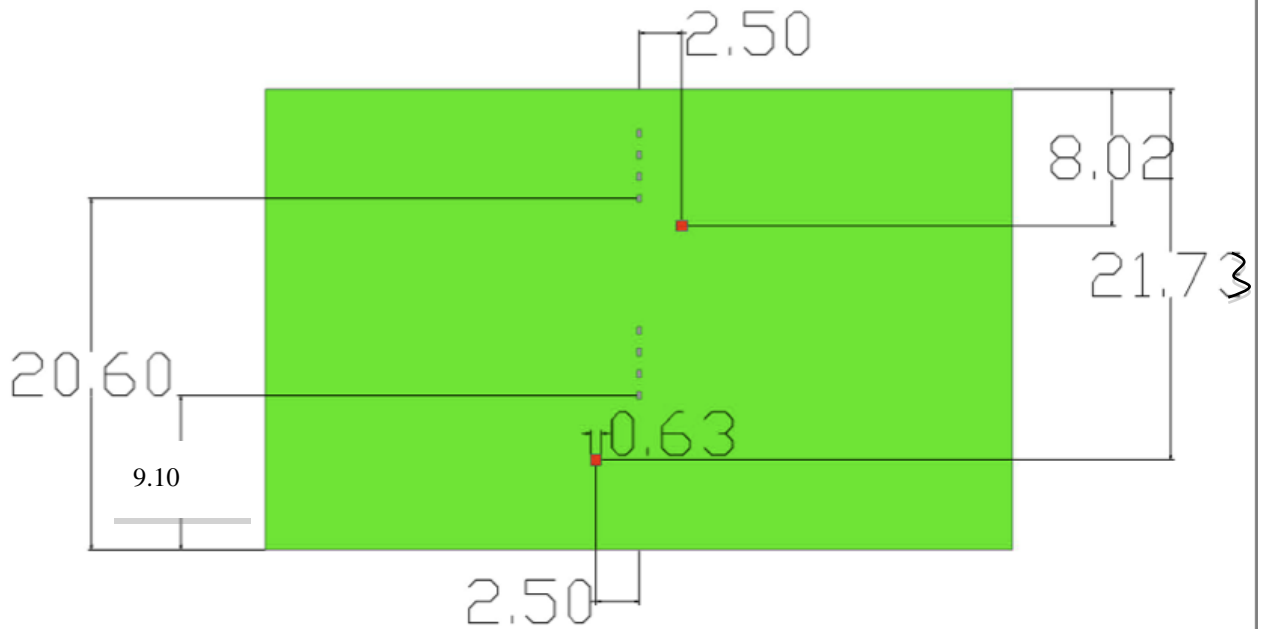


Fig-8: Electrical lead-frame dimensions and Pin-out.

