



HELLROARING TECHNOLOGIES, INC.

P.O. Box 1521
POLSON, MT 59860
406 883-3801 [HTTP://WWW.HELLROARING.COM](http://www.hellroaring.com)
SUPPORT@HELLROARING.COM

SSR-10300A and SSR-10300-HS

The SSR-10300A and SSR-10300-HS are designed for positive (+) DC load switching (solid state relay) applications where the Control Input **return** connection can be **common to the power return**. This unit **does not utilize opto-isolation**. Many applications will benefit by the reliable, high current, dc switching capability. The SSR-10300A unit can switch either the high side or low side, but must be **positive** relative to its ground terminal. The SSR-10300-HS can switch the high side only.

Should you have a specific application or question not covered here, feel free to send an e-mail technical support request. Include as much detail as practical regarding your application. Send to: support@hellroaring.com.

Depending on your power source capability and wire size utilized, appropriate circuit protection should be installed. The following table includes recommendations for wire protection values.

Wire Size AWG	Circuit protection
6	100 A
8	60 A
10	40 A
12	25 A

The circuit protection listed is for continuous current.

The SSR unit requires some micro-power voltage to operate. The "Power" terminal should always be connected to the power source. The power source should be between +7 and +26 volts (to +30 volts intermittent operation).

Industrial Switching Applications:

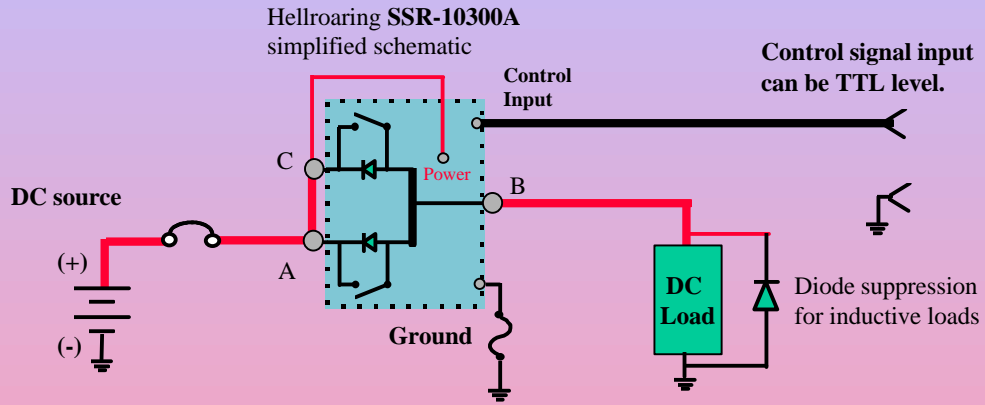
Wire per one of the Load Switching Applications diagram illustrated below. **Always use diode suppression** for inductive loads even if small. For installation, follow these steps:

- 1) Verify the load has diode suppression installed as illustrated.
- 2) Connect the power source Positive (+) to terminal "A" and "C".
- 3) For the SSR-10300A only, connect its Power terminal to the power source.
- 4) Connect the ground terminal through a ½ to 5 amp fuse to ground.
- 5) Connect the load.

The unit is now ready for switching. Switch the control signal input as desired and within the limits specified. Do not disconnect the load while the SSR is switched ON. To change batteries, Switch OFF the SSR, Disconnect the battery, Connect a new battery, Switch the SSR control input as desired.

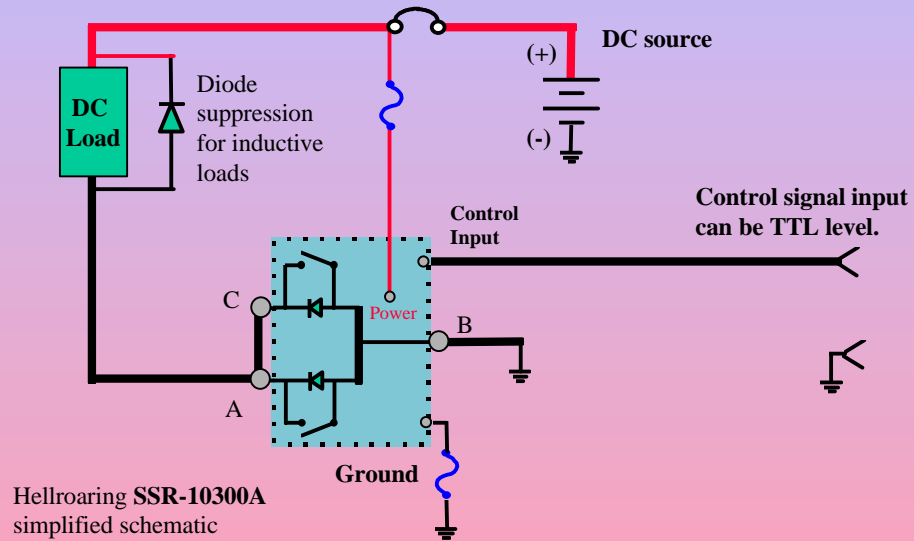
Hellroaring SSR-10300A Instructions

High Side DC Load Switching



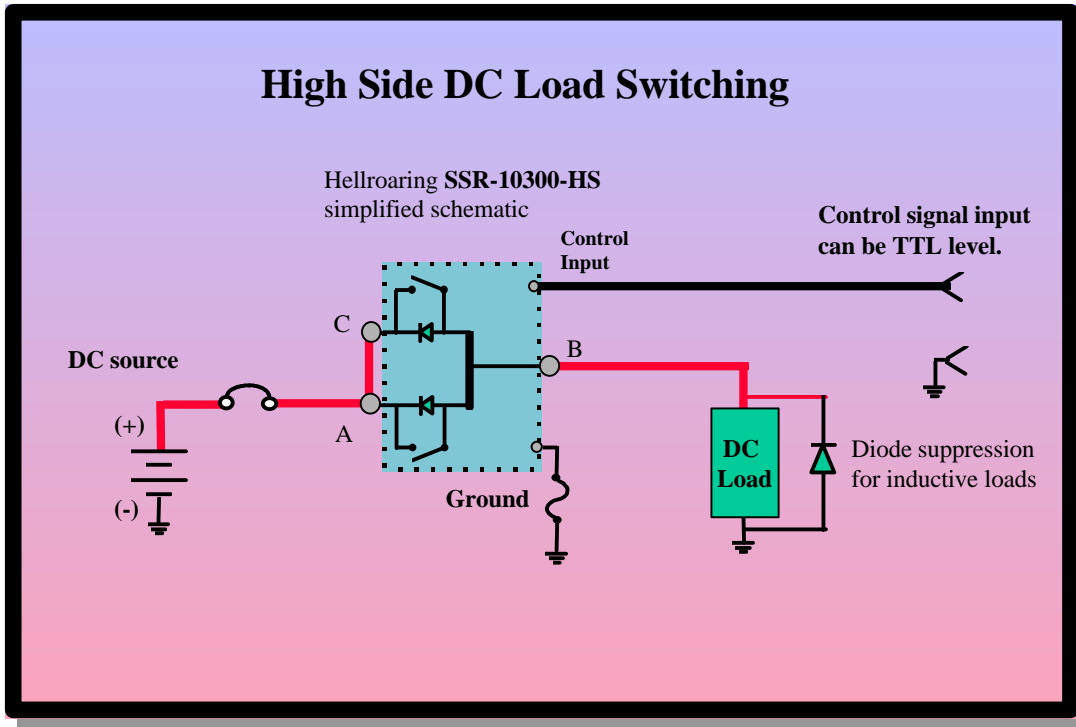
High Side Load Switching Applications

Low Side DC Load Switching



Low Side Load Switching Applications

Hellroaring SSR-10300A Instructions



High Side Load Switching Applications with SSR-10300-HS

For other applications or possible setups, check our web site <http://hellroaring.com> for additional suggested configurations or other tips. If you have other questions you can send e-mail to support@hellroaring.com. Please include your serial number.

Definitions:

Power Terminal: The Power terminal must be connected to the power source driving the load, or it must be connected to another source that always has a more positive voltage than the power source driving the load. The power source must be between +7 and +26 volts dc (30 volts intermittent operation). The **Model SSR-10300-HS** does not have a power terminal. Its power is connected internally to terminal "C". Therefore, it can only switch high side loads.

Control Input: This terminal, when connected to a voltage higher than about 2.5 volts (when the Power terminal also has > 7 volts), will cause the terminals A, B, and C to electrically Combine (switch ON). This terminal, when connected to a voltage lower than 2.0 volts causes the terminals A, B, and C to switch OFF. This level will be compatible with ttl logic levels. Input resistance is 10k ohms resulting in only 0.0005 amps with a ttl logic hi input. Higher input voltages can be used by adding resistance in series with this terminal. For example: the following table lists the resistor and results:

Resistor Value	Switching Threshold	Recommended
27 k ohm	> 9 volts	12 volt source
65 k ohm	> 18 volts	24 volt source

If desired, higher signal loading can be achieved by adding a shunt resistor across the Control input terminal to ground. For example, by adding a 250 ohm resistor from the Control input to ground, a 0 to 5 volt signal will require 0 to 20 mA. To achieve a 20 mA load with a 26 volt source, a 1300 ohm (1/2 or greater Watt) resistor would be needed from the Control input to ground.

Ground Terminal: This terminal must be connected to the Power Source common (negative side).

Hellroaring SSR-10300A Instructions

Specifications:

SSR-10300A:

Unless specified **otherwise ambient temp=25C**; max current from terminals "B" to parallel "A" & "C".

Max voltage	26 volts 30 Volts	continuous Intermittent operation
Absolute Max ON Current (12 Volt Source)	100 Amps	Continuous Current. < 10 PPS (can be switched on and off at any time) to +65C ambient.
Recommended operation at 90% or less of max values for specs at +25C	125 Amps	Continuous Current. < 10 PPS (can be switched on and off at any time) to +40C ambient.
	150 Amps	< 50 % Duty Cycle, < 5 PPS or (Max On Duration, Continuous. Min Off duration, 30 seconds or 50% D/C whichever is less) +25C ambient.
	200 Amps	< 20 % Duty Cycle, < 5 PPS and (Max On Duration, 60 Seconds.) +25C ambient.
	250 Amps	< 2 % Duty Cycle, < 2 PPS and (Max On Duration, 15 Seconds.) +25C ambient.
	300 Amps	< 1 % Duty Cycle, < 1 PPS and (Max On Duration, 5 Seconds.) +25C ambient.
Absolute Max ON Current (24 Volt Source)	65 Amps	Continuous Current. < 10 PPS (can be switched on and off at any time) To +65C ambient.
Recommended operation at 90% or less of max amps for specs at +25C	80 Amps	Continuous Current. < 10 PPS (can be switched on and off at any time) +25C ambient.
	90 Amps	< 50 % Duty Cycle, < 5 PPS or (Max On Duration, Continuous. Min Off duration, 30 seconds or 50% D/C whichever is less) +25C ambient.
	100 Amps	< 20 % Duty Cycle, < 5 PPS and (Max On Duration, Continuous. Min Off duration, 60 seconds or 20% D/C whichever is less) +25C ambient.
		PPS = Pulses Per Second
Max On Resistance (@ 10 amps)	0.002	Ohms terminal "B" to parallel "A & C"
Max quiescent current "Off"	0.0005	Amps
Max Control Input Current	0.001 (0.0005 typical)	Amps
Switch ON voltage	> 2.4 volts	Adjustable with external resistor.
Switch OFF voltage	< 2.3 volts	
Switch on transient time Tr	2.0 to 5 mS	typical, depends on source voltage.
Switching delay	0.025 Second	approximate with 0-5 volt input transitions.

Note: Specifications are subject to change without notice.

Hellroaring SSR-10300A Instructions

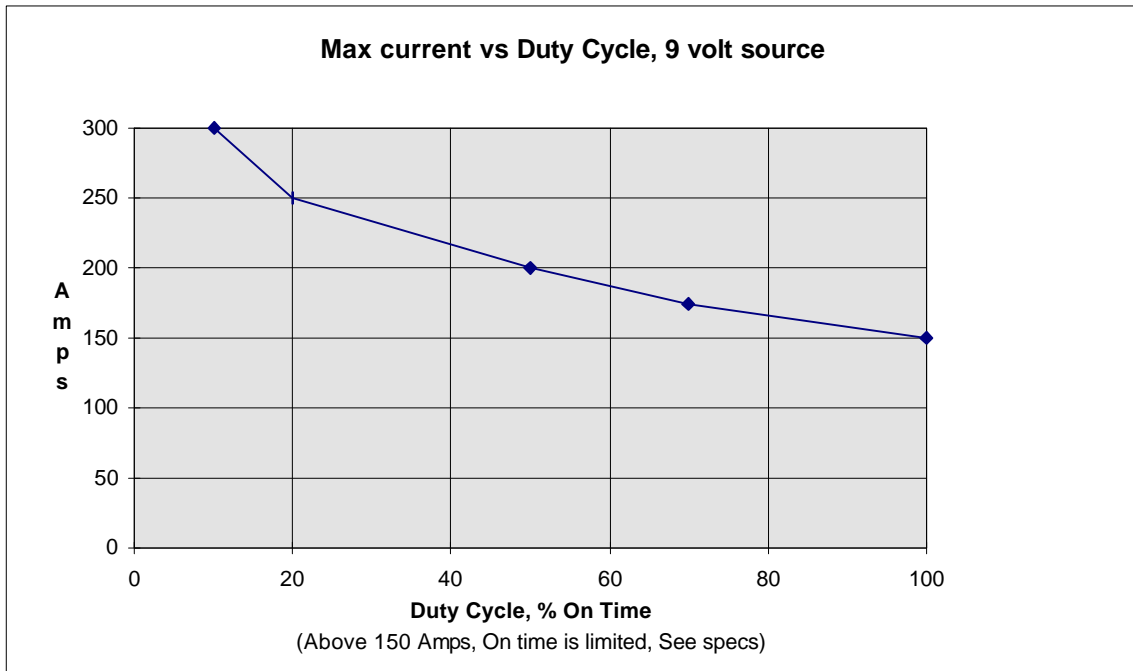


Figure 1

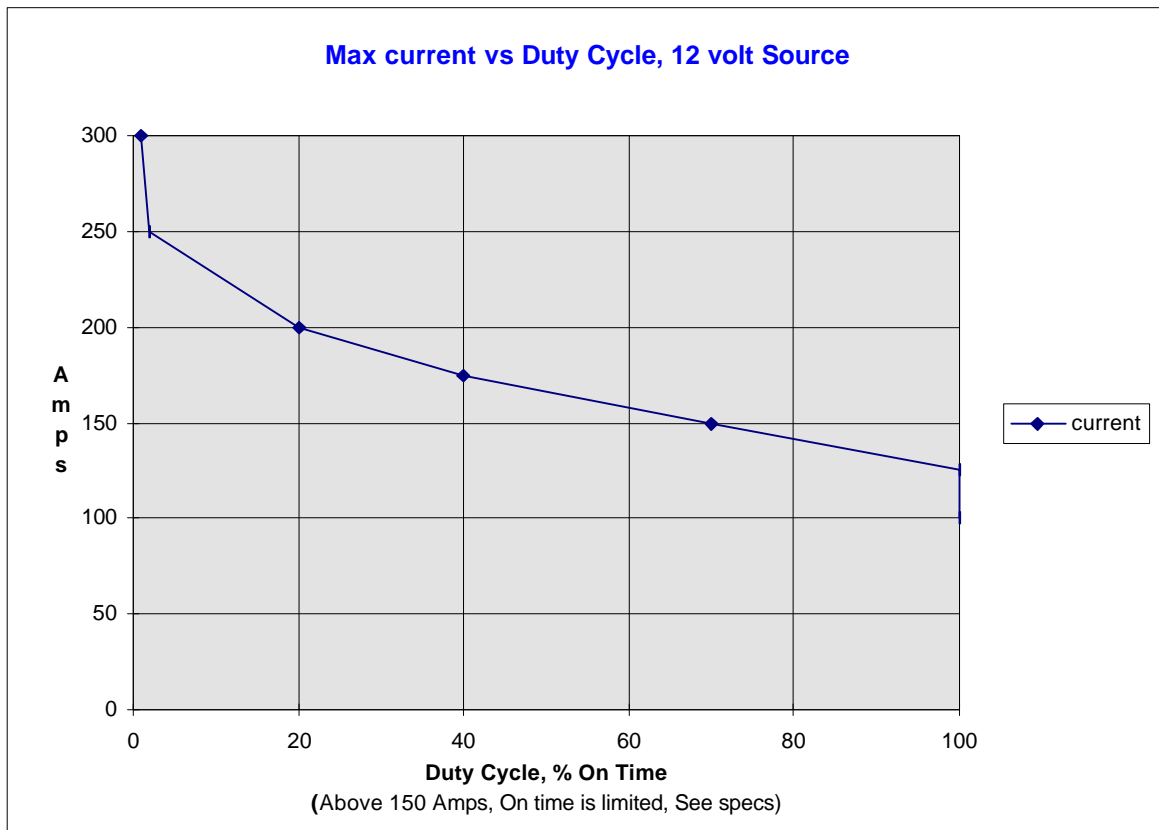


Figure 2

Hellroaring SSR-10300A Instructions

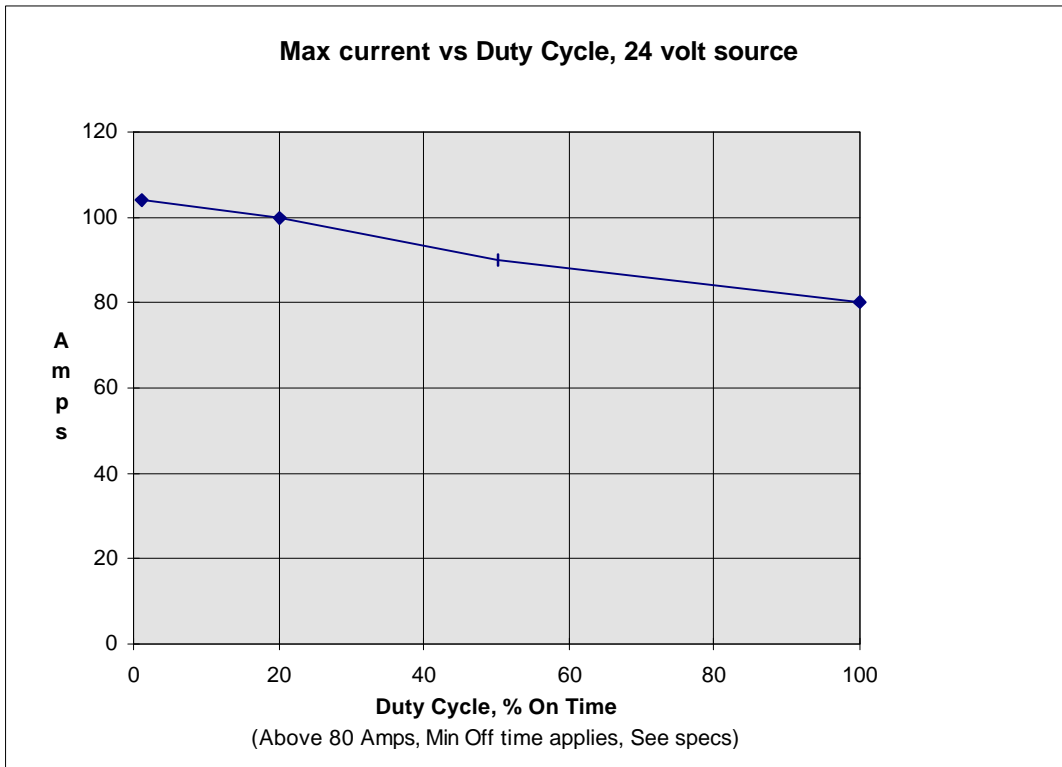


Figure 3

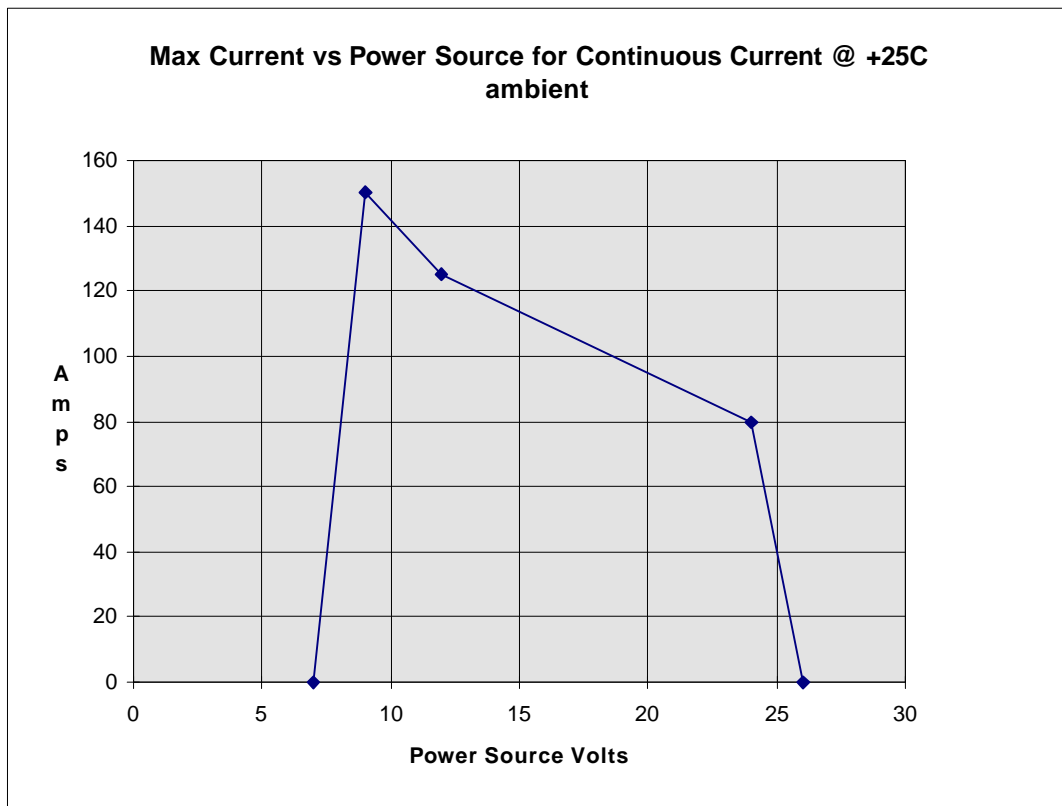


Figure 4

Hellroaring SSR-10300A Instructions

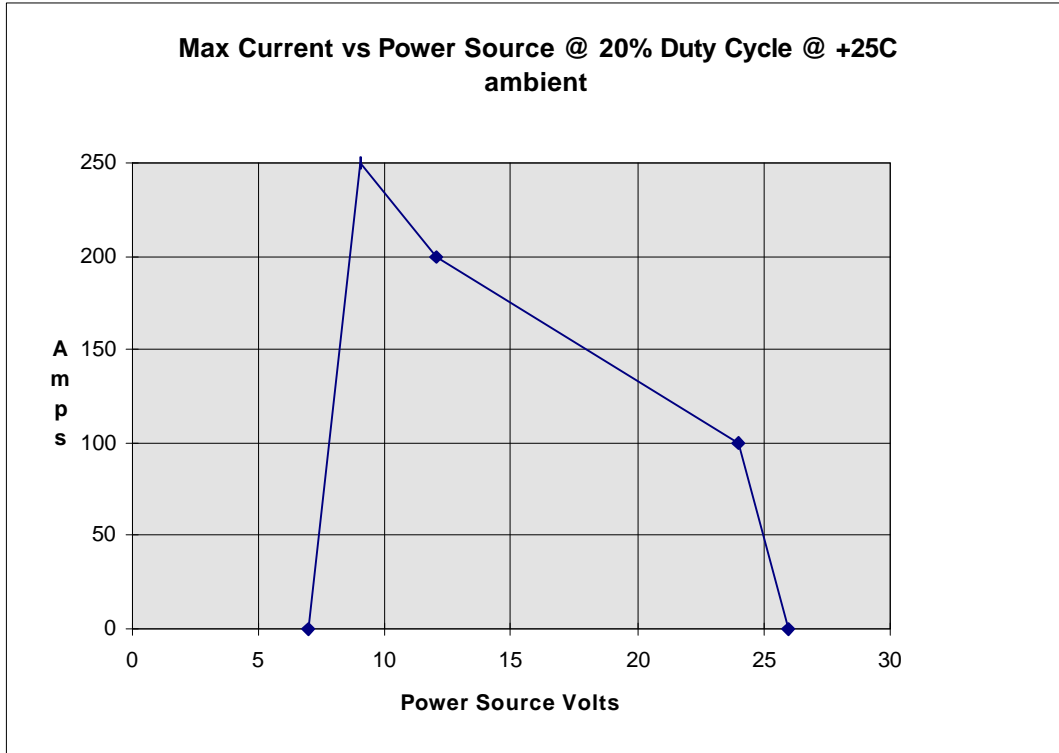


Figure 5

Hellroaring SSR-10300A Instructions

Standard Terms and Conditions of Sale

The sale of Hellroaring Technologies, inc. products shall be governed by the laws of the state of Montana. All sales shall transfer title within the state of Montana via common carrier. Hellroaring Technologies, inc. will not collect sales taxes for any other state. Should the unlikely event, a cause of action arises, buyer agrees that such action shall be held and governed in the state of Montana. The buyer recognizes that there exists inherent risks associated with batteries and installation & operation of battery devices. It is understood that any technical information published by Hellroaring Technologies, inc. including any installation instructions is of a general nature only and it is the user's responsibility to determine the proper application, installation, and operation of products. The buyer assumes all risk and agrees to indemnify Hellroaring Technologies, inc. against any and all causes for injury or damage to third parties that arises from use of such product.

Return Policy

Should any single unit product sold by Hellroaring Technologies, inc. not meet or exceed your expectations, you may, within 30 days of our shipment to you, return such product for a full refund (credit on credit card orders) less a 15% restock charge, provided that:

- a) You obtain an RMA number and provide your shipping address by calling customer service at 406 883-3801 or send an RMA request via e-mail (include the model #, serial number, and your phone number), and
- b) The product, including all accessories, is returned in original and re-saleable condition, and
- c) Units are Shipped (prepaid and insured for damage in transit) in the original or equivalent packaging, and
- d) (optional) You include a simple note as to the reason for dissatisfaction. (This can help us improve our products)

After 30 days, products are covered by our standard Limited Warranty. If you purchased the product through a dealer, that dealer's return policy applies to you. Our standard Limited Warranty will apply if you register by sending your name, a copy of proof of purchase date, model # and serial number to us within 30 days of purchase. This can be via mail or e-mail (warranty@hellroaring.com). Those who purchased direct from us are **automatically** registered. For quantity orders, sales are final and our standard limited warranty applies.

Limited Warranty

This Limited Warranty is extended to the original purchaser. For a period of one year from the date of purchase (**30 days for industrial switching applications**), Hellroaring Technologies, inc. warrants that our products will be free from defects in materials and workmanship under normal use and service. The sole and exclusive remedy for failure of the product shall be for us, at our option, to repair or replace the product, to whatever extent we deem necessary to restore the product to proper operating condition. We may make replacements with new or functionally equivalent products of equal value. Should Hellroaring Technologies, inc. be unable to repair or replace the product within a reasonable time, we reserve the right, at our option, to issue a refund or credit of the purchase price in lieu of repair or replacement. We reserve the right to assess a \$15 fee for units returned and proven not to be defective. To obtain warranty service you must:

- 1) Call Customer Service at 406-883-3801 for a Return Material Authorization (RMA) number and shipping address. Or send an RMA request via e-mail (include the model #, serial number, and your phone number and your return shipping address)
- 2) Return the product in the original or equivalent packaging (Shipping prepaid and insured for damage in transit), together with the RMA number AND a description of the problem. Include your return shipping address and your phone number.

Do not attempt to disassemble, or otherwise tamper with any of the 4 nuts on the bottom of each unit. Doing so will void this limited warranty. For quantity orders, extended warranty for switching applications may be available on an application specific basis at slight extra cost.

Exclusions

This Limited Warranty is made expressly in lieu of and to the exclusion of any and all warranties, express or implied, oral or written, including, without limitation, any and all implied warranties of merchantability or fitness for a particular purpose, and all such other warranties are expressly disclaimed. This Limited Warranty shall not be applicable to failures of the product that result from accident, abuse, misapplication or alteration, improper installation or maintenance, unauthorized repair attempts, operation or attempts to operate it beyond its mechanical, chemical, thermal, or electrical capacity intentionally or otherwise, and we assume no liability as a consequence of such events under the terms of this warranty. Hellroaring Technologies, inc. shall not be liable for any special, indirect, incidental, consequential, exemplary, or punitive damages for claims in any claim, action, suit or proceeding arising out of the purchase, use or performance of the product, and whether or not it has been advised of the possibility of such damages. The foregoing allocation of risk is reflected in the price of the product. Nor shall there be any liability thereunder for claims of labor, loss, profit, goodwill, repairs or other expenses incidental to the repair or replacement of such product.

Hellroaring Technologies, inc.