

OWNERS MANUAL

DCS 30/31 Series Hall-Effect DC Current Sensors



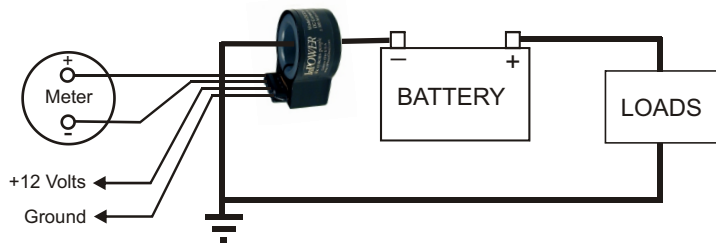
A. Introduction

The DCS 30/31 Series is a family of Hall-effect dc current sensors designed to operate standard 50 millivolt or 100 millivolt ammeters. Although they are typically used in vehicle and marine applications to measure battery charging or discharging currents, they can be applied in a variety of dc circuits to measure dc current. The sensors measure positive and negative current values, or just a positive range. In the example of the model DCS30-300-1, the measuring range is -300 amps to +300 amps, with a corresponding output to the meter of -50 millivolts to +50 millivolts. The model DCS31-300-1 would measure 0 to 300 amps, with a corresponding output of 0 to 50 millivolts. Models are available to interface to either ± 50 millivolt meters or ± 100 millivolt meters. Note that the meter must have an internal resistance of 20 ohms or greater. The sensors require a power source of 12 Vdc (ground and +12 volts).

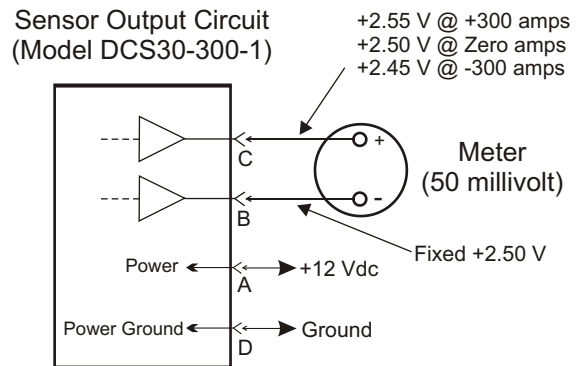
DC Current Sensor Models

Model	Current Range	Output	Model	Current Range	Output
DCS30-100-1	± 100 Amps	± 50 Millivolts	DCS30-400-1	± 400 Amps	± 50 Millivolts
DCS30-200-1	± 200 Amps	± 50 Millivolts	DCS30-500-1	± 500 Amps	± 50 Millivolts
DCS30-300-1	± 300 Amps	± 50 Millivolts	DCS30-600-1	± 600 Amps	± 50 Millivolts
DCS30-100-2	± 100 Amps	± 100 Millivolts	DCS30-400-2	± 400 Amps	± 100 Millivolts
DCS30-200-2	± 200 Amps	± 100 Millivolts	DCS30-500-2	± 500 Amps	± 100 Millivolts
DCS30-300-2	± 300 Amps	± 100 Millivolts	DCS30-600-2	± 600 Amps	± 100 Millivolts
DCS31-100-1	0 to 100 Amps	0 to 50 Millivolts	DCS31-400-1	0 to 400 Amps	0 to 50 Millivolts
DCS31-200-1	0 to 200 Amps	0 to 50 Millivolts	DCS31-500-1	0 to 500 Amps	0 to 50 Millivolts
DCS31-300-1	0 to 300 Amps	0 to 50 Millivolts	DCS31-600-1	0 to 600 Amps	0 to 50 Millivolts
DCS31-100-2	0 to 100 Amps	0 to 100 Millivolts	DCS31-400-2	0 to 400 Amps	0 to 100 Millivolts
DCS31-200-2	0 to 200 Amps	0 to 100 Millivolts	DCS31-500-2	0 to 500 Amps	0 to 100 Millivolts
DCS31-300-2	0 to 300 Amps	0 to 100 Millivolts	DCS31-600-2	0 to 600 Amps	0 to 100 Millivolts

System Diagram



Sensor Wiring



B. Specifications

Sensor Type:	Open loop Hall-effect
Linearity:	1.5 %
Supply Voltage Range:	+7 to + 20 Vdc
Current Consumption:	8.1 milliamps maximum
Output to Meter:	±50 millivolts or ±100 millivolts
	Note - Meter internal resistance must be 20 ohms or greater.
Operating Temperature:	-40° C to +125° C
Storage Temperature:	-40° C to +125° C
Aperture Size:	1.23 inches
Weight:	0.30 lbs
Dimensions:	2.66" x 2.10" x 1.10"
Connector System:	Packard Sealed Metri-Pak 150. Note - Mating plug not supplied with sensor. See InPower Technical Bulletin TB-31 for details and purchasing source.

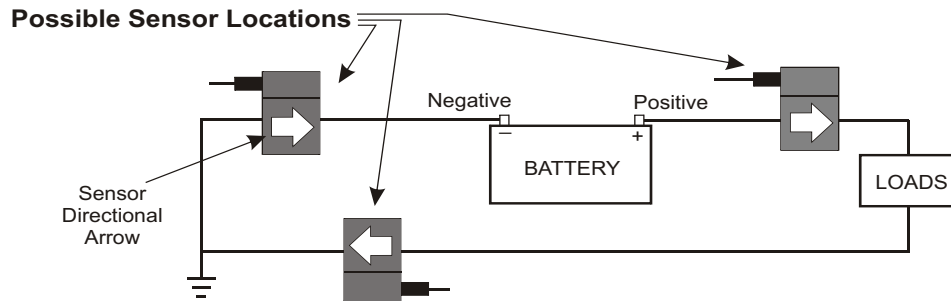
C. Installation

1. Getting Started

Before starting, make sure that you have the correct connector plug parts, interface cable, sensor mounting bracket and screws, and tools. Determine the location where the sensor will mount and the required cable length/routing to the meter. Avoid mounting the sensor close to very hot engine parts such as the exhaust manifold.

2. Install The Sensor

Mount the sensor and route the battery cable through its aperture. The sensor may be secured to the battery cable using tie wraps, or a mounting bracket could be fabricated that will secure the sensor via its three bracket holes to a mounting surface or to the battery cable. Use #6 self tapping screws and be sure that the screws do not protrude into the sensor more than 0.30 inches. **Be sure to mount the sensor in the proper direction to correctly measure the charging (plus) and discharging (minus) battery current.** See the following diagram for suitable sensor mounting locations.



3. Install and Wire the Cable

Wire the mating four-pin plug that connects to the sensor and route the cable to the meter. You will need to wire two sensor connector pins to the meter and two pins to ground and +12 volts.

4. Check Sensor and Meter Operation

Apply power to the sensor and verify that the meter is working correctly by checking battery charging and discharging conditions. It would be helpful to use a clamp-on ammeter such as a Fluke to verify proper operation.

D. Mechanical Drawing

