

# ACUAMP® DCS100 Series DC Current Switches



DCS100 series current switches combine a Hall effect sensor, signal conditioner and limit alarm into a single package for use in DC current applications up to 100A. The DCS100 series has jumper-selectable current input ranges and your choice of Normally Open Solid-State or SPDT Relay outputs. This series is available in fixed core models only.

## Applications

- Welders**
  - Indication of equipment status
- Power Supplies**
  - Prevent equipment failures due to over-current conditions.
- Battery Systems**
  - Monitor the state of critical backup batteries.

## Features

- Compact, one-piece design
- Built-in mounting feet with optional 35 mm DIN rail adapter available.
- Removable terminal blocks that accept up to 12 AWG solid or stranded wire
- Adaptive hysteresis is 5% of setpoint, allowing closer control.
- Selectable input ranges allow end users to tailor sensing ranges and improves the odds of having the right range for the job.
- Not polarity sensitive; can measure positive or negative current.
- Output is magnetically isolated from the input for safety and to eliminate voltage drop.
- Five-year warranty**



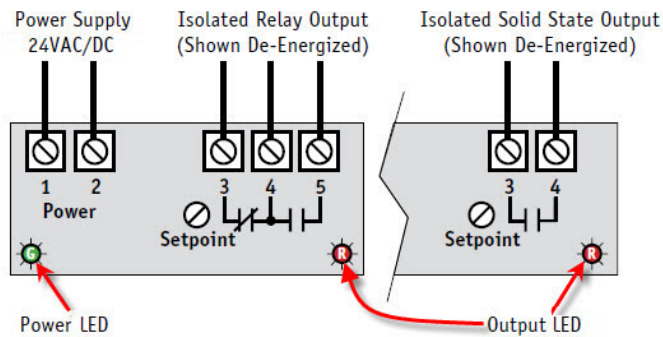
| DCS100 Series DC Current Switches |  |         |         |          |
|-----------------------------------|--|---------|---------|----------|
| Part Number                       | Description  | Pcs/Pkg | Wt (lb) | Price    |
| <b>DCS100-AE-24-F</b>             | AcuAMP DC current switch, fixed core, 5-15, 10-50, or 20-100A selectable sensing range, 5-100A adjustable trip point, 11-turn potentiometer, solid state switch, N.O. output, 0.15A @ 240 VAC/VDC output rating. | 1       | 0.35    | \$109.00 |
| <b>DCS100-1C-24-F</b>             | AcuAMP DC current switch, fixed core, 5-15, 10-50, or 20-100A selectable sensing range, 5-100A adjustable trip point, 11-turn potentiometer, relay, SPDT output, 5A @ 240 VAC or 3A @ 30 VDC output rating.      | 1       | 0.35    | \$113.00 |
| Accessories                       |  |         |         |          |
| <b>DRA-2B</b>                     | 35mm DIN rail adapters, 1.70"x0.45"x0.83" [43.7x11.4x21.0 mm]  | 2       | 0.40    | \$4.25   |

| Ranges and Maximum Amps |         |                    |           |
|-------------------------|---------|--------------------|-----------|
| Jumper Position         | Range   | Maximum Input Amps |           |
|                         |         | Continuous         | 5 Seconds |
| Low                     | 5-15A   | 200A               | 300A      |
| Mid                     | 10-50A  | 200A               | 300A      |
| High                    | 20-100A | 200A               | 300A      |

| DCS100 Series Specifications |   |  |
|------------------------------|---|--|
| Models Available             | AE  | 1C   |
| Power Supply                 | 20-28 VAC/DC  | 20-28 VAC/DC   |
| Power Consumption            | 2VA   | 2VA  |
| Switch Rating                | Solid State, N.O. (0.15 A @ 240 VAC/DC)                   | SPDT (Form C) Relay<br>5A General Purpose @ 240VAC<br>3A Inductive @ 240VAC<br>3A @ 30VDC<br>1/8 HP @ 240VAC |
| Off State Leakage            | <10µA   | None   |
| Response Time                | 100ms (10% above setpoint),<br>20ms (100% above setpoint) | 100ms (10% above setpoint),<br>20ms (100% above setpoint)  |
| Hysteresis Approx            | 5% of setpoint  | 5% of setpoint   |
| Repeatability                | 0.5 %   | 0.5%   |
| Input Ranges                 | 5-15, 10-50 and 20-100A, Jumper Selectable                | 5-15, 10-50 and 20-100A, Jumper Selectable   |
| Setpoint (Trip Point) Adjust | 11-turn Potentiometer                                     | 11-turn Potentiometer  |
| Sensing Aperture             | 0.75" [19.1 mm] diameter                                  | 0.75" [19.1 mm] diameter   |
| Isolation Voltage            | 3KV   | 3KV  |
| Frequency Range              | DC  | DC   |
| Case                         | UL 94V-0 Flammability Rated                               | UL 94V-0 Flammability Rated  |
| Environmental                | Operating Temperature: -40 to 140°F [-40 to 60°C]         | Operating Temperature: -4 to 122°F [-20 to 50°C]   |
|                              | Relative Humidity: 0-95% RH, non-condensing               |  |
|                              | Pollution Degree 2  |  |
| Certifications               | Altitude to 2000 meters                                   |  |
|                              | cULus listed (E222847), CE                                |  |

# ACUAMP® DCS100 Series DC Current Switches

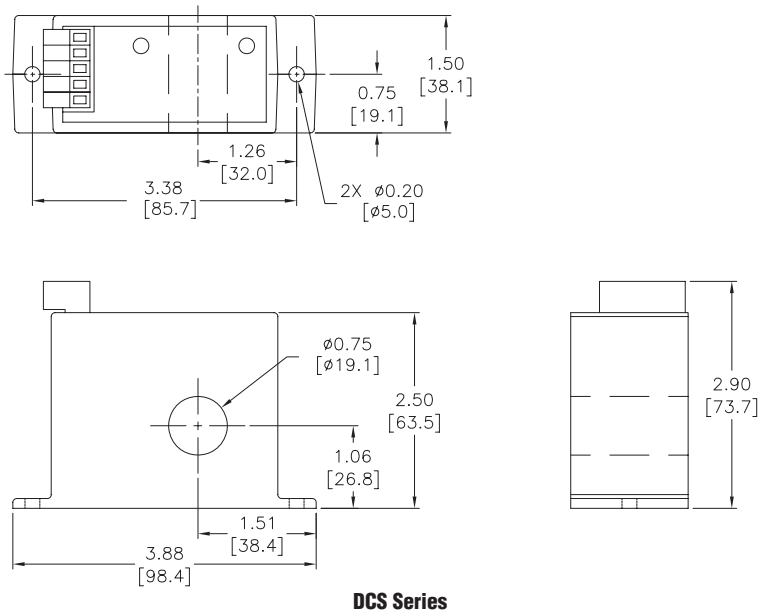
## Wiring



Click on the thumbnail or go to <https://www.automationdirect.com/VID-CT-0001> for a short introductory video on the AcuAmp Current Switches, Transducers and Indicators

## Dimensions

Inches [mm]



See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.



# DC Current Switches and Transducers

## Overview

The AcuAMP series of DC current sensors is a family of high-performance sensors offering outstanding features, flexibility, and durability at an incredible Price. Choose from a wide selection of current transducers and current switches, all designed in a rugged industry standard feed-through package.

DCT and DCS100 series have multiple input ranges (set by movable jumpers) for maximum flexibility across many current ratings. DCT series include output choices of 4 to 20 mA or +/-10 VDC bidirectional models.

DCS series outputs are available in isolated solid state Normally Open and in Single Pole Double Throw (SPDT) relay configurations.

DCT series current transducers combine a Hall Effect sensor and signal conditioner into a single package for use in DC current applications up to 400A. DCT series are available in split-core or fixed-core enclosures.

DCS100 series combine a Hall effect sensor, signal conditioner and a limit alarm into a single package. DCS100 series models are available in a fixed

core case with the choice of a relay or universal solid-state output.

All models are panel-mountable; convenient DIN-rail adapter accessories are available. Use the Selection Guide below to find the best sensor for your requirements.



## Selection Guide

| AcuAMP DC Current Sensors Specifications by Model Type |  |  |   |
|--|--|--|---|
| Specifications   | Transducer   |  | Switch  |
| Model  | DCT  | DCT 500 to 750A Large Aperture                   | DCS100  |
| <b>Power Supply</b>                                    | 20-45 VDC*, 22-38 VAC  | 24 VAC/DC, Use Class 2 power supply              | 20-28 VAC/VDC   |
| <b>Power Consumption</b>                               | 2VA  |  |   |
| <b>Setpoint (Trip point)</b>                           | N/A  | N/A  | 11-Turn Potentiometer   |
| <b>Output Signal</b>                                   | 4-20 mA Sourcing<br>+/- 10VDC (Bidirectional models only)  | 4-20 mA Sourcing                                 | N/A   |
| <b>Output Limit</b>                                    | 4-20 mA: 23mA<br>0-10 VDC: 11.5 VDC  | 23mA   | N/A   |
| <b>Output Loading</b>                                  | 4-20 mA: 500Ω max<br>0-10 VDC: 50kΩ min.   | 500Ω max   | N/A   |
| <b>Output Switch</b>                                   | N/A  |  | AE models: Normally Open Solid State<br>1C models: Single Pole Double Throw (SPDT) Relay  |
| <b>Switch Rating</b>                                   | N/A  |  | AE models: Solid State N.O. (0.15 A @ 240 VAC/<br>VDC)<br>1C models: SPDT (Form C) Relay<br>5A General Purpose @ 240VAC<br>3A Inductive @ 240VAC<br>3A @ 30VDC<br>1/8 HP @ 240VAC |
| <b>Off State Leakage</b>                               | N/A  |  | AE: <10μA; 1C: None   |
| <b>Accuracy</b>  | Fixed core: 1% FS, Split core: 2% FS   | 2% FS  | N/A   |
| <b>Current Ranges</b>                                  | Jumper Selectable:<br>DCT100-42: 0-50A, 0-75A, 0-100A<br>DCT200-42: 0-100A, 0-150A, 0-200A<br>DCT400-42: 0-200A, 0-300A, 0-400A<br>DCT500-42: 0-500A<br>Fixed:<br>DCT100-10B: 0-100A Bidirectional<br>DCT200-10B: 0-200A Bidirectional<br>DCT300-10B: 0-300A Bidirectional | Fixed:<br>DCT500-42: 0-500A<br>DCT750-42: 0-750A | 5-15, 10-50 and 20-100 A, Jumper Selectable   |
| <b>Repeatability</b>                                   | 1% FS  | 1% FS  | 0.5% FS   |
| <b>Response Time</b>                                   | Fixed core: 20ms (to 90% of step change)<br>Split core: 100ms (to 90% of step change)  | 100ms (to 90% of step change)                    | 100ms (10% above setpoint),<br>20ms (100% above setpoint)   |
| <b>Hysteresis Approx</b>                               | N/A  |  | 5% of setpoint  |
| <b>Isolation Voltage</b>                               | 3KV  |  |   |
| <b>Frequency Range</b>                                 | DC   |  |   |
| <b>Case</b>  | UL 94V-0 Flammability Rated  |  |   |
| <b>Environmental</b>                                   | Operating Temperature: -4 to 122°F [-20 to 50°C]   |  | Operating Temperature: AE = -40 to 140°F [-40 to 60°C];<br>1C = -4 to 122°F [-20 to 50°C]   |
|  | Relative Humidity: 0-95% RH, Non-condensing  |  |   |
|  | Pollution Degree 2   |  |   |
|  | Altitude to 2000 meters  |  |   |
| <b>Sensing Aperture</b>                                | Fixed core: 0.75" [19.1 mm] dia.<br>Split core: 0.85" [21.6 mm] sq   | 1.77" [45mm] dia.                                | 0.75" [19.1 mm] dia.  |

\* DC only for -10B Bidirectional models



# DC Current Switches and Transducers Applications

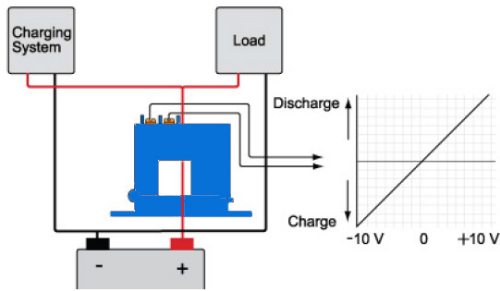
## Application Guide

AcuAMP DC current sensors are a great fit for many applications, including battery charge systems, solar panels, and Uninterruptible Power Systems. With both current transducers and current switches, this sensor family gives you valuable data for processes ranging from monitoring loads to preventive maintenance.

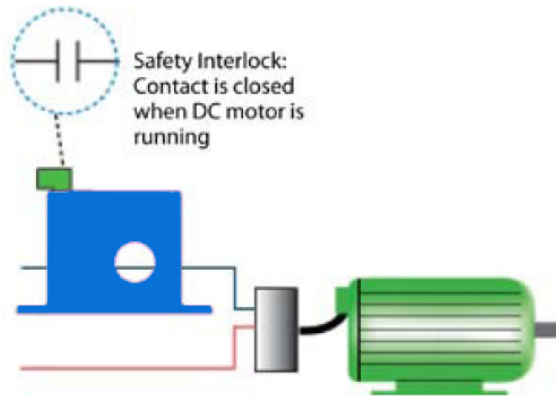
The bi-directional models allow the monitoring of batteries while they are being charged or consumed and can be used to trigger a warning if critical low levels are reached. They can also monitor the output of a photovoltaic array to make sure there is enough energy being generated to keep the process running.

### Transducer

#### Battery Charging System - Bidirectional Output

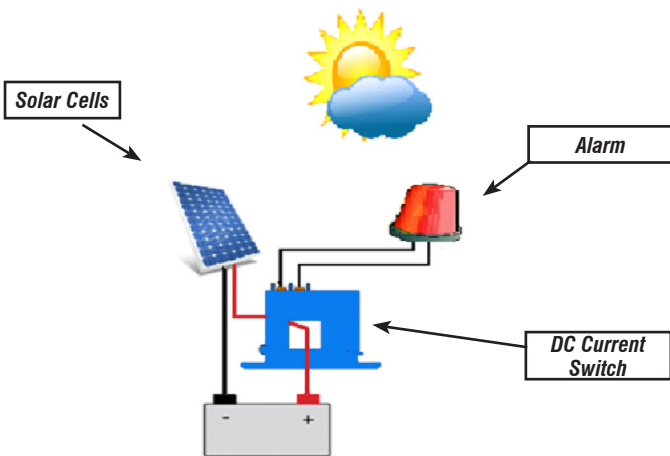


### Failure Detection



### Switches

#### Solar Panel - Current Drop



Click on the thumbnail or go to <https://www.automationdirect.com/VID-CT-0001> for a short introductory video on the AcuAmp Current Switches, Transducers and Indicators

When the sun is blocked, the current drops. The Current Operated Switch detects the drop in current and activates the relay which turns on the alarm light.