

# 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

- Five-year warranty
- 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.

## Agency Approvals



DCS100 Series DC Current Switches				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
DCS100-AE-24-F	DC current switch, fixed-core, 5-15, 10-50, 20-100A, N.O. AC/DC, 24 VAC/DC	1	0.35	\$91.00
DCS100-1C-24-F	DC current switch, fixed-core, 5-15, 10-50, 20-100A, SPDT RELAY, 24 VAC/DC	1	0.35	\$94.00
Accessories				
DRA-2B	35mm DIN rail adapters, 1.70"x0.45"x0.83" [43.7x11.4x21.0 mm]	2	0.40	\$3.75

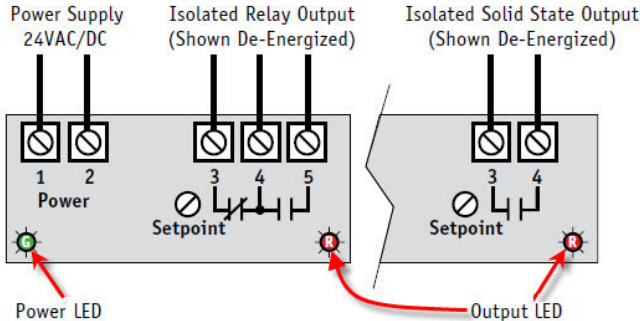
Ranges and Maximum Amps			
JUMPER POSITION	RANGE	MAXIMUM INPUT AMPS	
		CONTINUOUS	5 Seconds
LOW	5-15A	200A	300A
MID	10-50A	200A	300A
HIGH	20-100A	200A	300A

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 5A General Purpose @ 240VAC 3A Inductive @ 240VAC 3A @ 30VDC 1/8 HP @ 240VAC
Off State Leakage	<10µA	None
Response Time	100ms (10% above setpoint), 20ms (100% above setpoint)	100ms (10% above setpoint), 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	
	Altitude to 2000 meters	
Agency Approvals*	UL/cUL (E222847), CE	

\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)

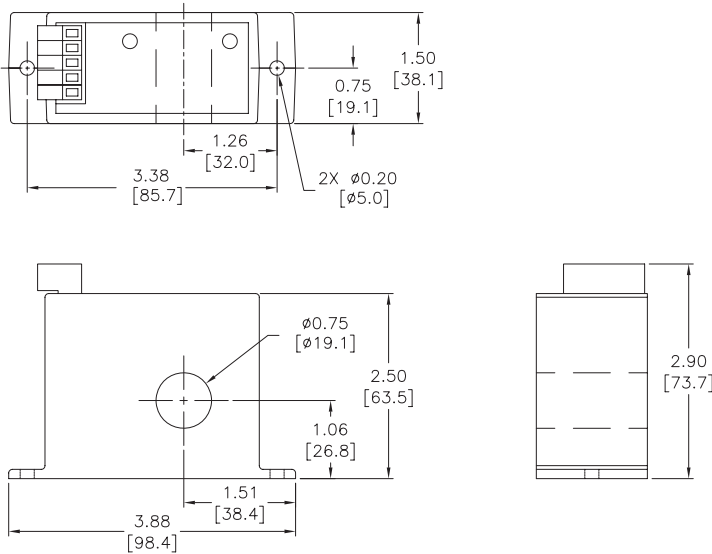
# ACUAMP® DCS100 Series DC Current Switches

## Connections



## Dimensions

Inches [mm]



DCS Series

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.

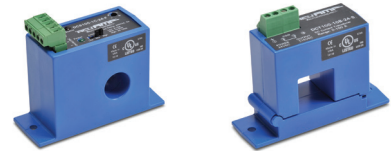
DCS series outputs are available in isolated solid state Normally Open and in Single Pole Double Throw (SPDT) relay configurations.

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 solid-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 1200A 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 +/- 10VDC (Bidirectional models only)	4-20 mA Sourcing	N/A
<b>Output Limit</b>	4-20 mA: 23mA 0-10 VDC: 11.5 VDC	23mA	N/A
<b>Output Loading</b>	4-20 mA: 500Ω max 0-10 VDC: 50kΩ min.	500Ω max	N/A
<b>Output Switch</b>	N/A		AE models: Normally Open Solid State 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/VDC) 1C models: SPDT (Form C) Relay 5A General Purpose @ 240VAC 3A Inductive @ 240VAC 3A @ 30VDC 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: DCT100-42: 0-50A, 0-75A, 0-100A DCT200-42: 0-100A, 0-150A, 0-200A DCT400-42: 0-200A, 0-300A, 0-400A DCT500-42: 0-500A Fixed: DCT100-10B: 0-100A Bidirectional DCT200-10B: 0-200A Bidirectional DCT300-10B: 0-300A Bidirectional	Fixed: DCT500-42: 0-500A DCT750-42: 0-750A DCT1000-42: 0-1000A DCT1200-42: 0-1200A	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) Split core: 10ms (to 90% of step change)	100ms (to 90% of step change)	100ms (10% above setpoint), 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]; 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. 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

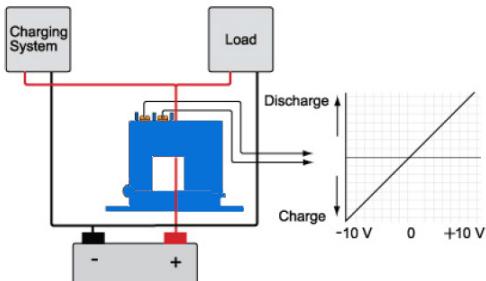
## Application Guide

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.

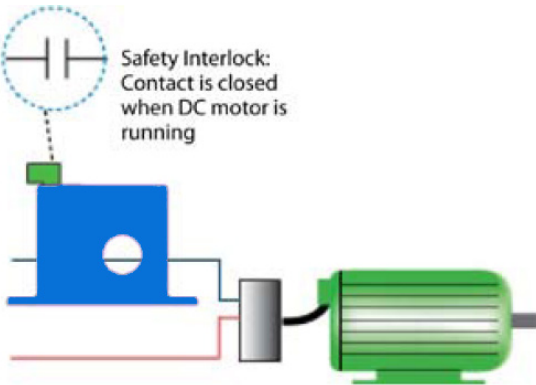
The bi-directional models allow the monitoring of batteries while they are being charged or consumed and can be used to trigger a warning if critical low levels are reached. They can also monitor the output of a photovoltaic array to make sure there is enough energy being generated to keep the process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

### Transducer

#### Battery Charging System - Bidirectional Output

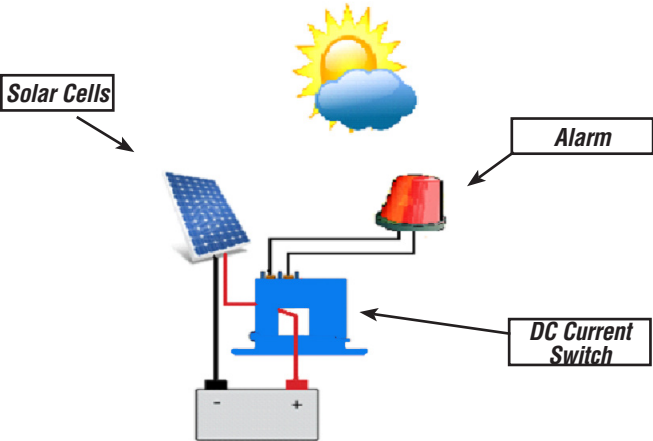


### Failure Detection



### Switches

#### Solar Panel - Current Drop



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.