

# ACUAMP® DCT Series DC Current Transducers



DCT series current transducers combine a Hall effect sensor and signal conditioner into a single package for use in DC current applications up to 1200A. The DCT series offers jumper-selectable or fixed current input ranges and industry standard 4-20 mA or +/-10 VDC outputs. The DCT series is designed to be compatible with most PLCs, data loggers and SCADA systems. Full-scale input ranges are jumper selectable to 400A (depending on model). This series is available in split-core or fixed-core models.

## Applications

### Battery Banks

- Monitor load current
- Monitor charging current
- Verifies operation

### Transportation

- Measures traction power or auxiliary loads

### Wind and Solar Generated Power

- Measure the current produced or consumed.
- Detect mechanical problems before failure occurs.

### Electric Heating Elements

- Monitors heater loads
- Faster response than temperature sensors

### Monitor DC Powered Motors

- Monitor current of cranes, saws, sorters and positioning equipment.

## Features

- Five-year warranty
- 4-20 mA or +/-10 VDC outputs
- Built-in mounting feet with optional 35mm DIN rail adapter available
- Factory matched and calibrated single piece transducer is more accurate than traditional two-piece field installed products.
- Selectable input ranges allow end users to tailor sensing ranges, improve the odds of having the right range for the job and reduces setup time.
- Output is magnetically isolated from the input for safety and to eliminate voltage drop.
- Reduced installation costs
- Split-core models make installation a snap.

## Agency Approvals



DCT Series DC Current Transducers				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
<b>DCT100-42-24-F</b>	DC current transducer, fixed-core, 0-50, 0-75, 0-100A, 4-20 mA, 24 VAC/DC	1	0.35	\$117.00
<b>DCT200-42-24-F</b>	DC current transducer, fixed-core, 0-100, 0-150, 0-200A, 4-20 mA, 24 VAC/DC	1	0.35	\$117.00
<b>DCT100-42-24-S</b>	DC current transducer, split-core, 0-50, 0-75, 0-100A, 4-20 mA, 24 VAC/DC	1	0.45	\$154.00
<b>DCT200-42-24-S</b>	DC current transducer, split-core, 0-100, 0-150, 0-200A, 4-20 mA, 24 VAC/DC	1	0.45	\$154.00
<b>DCT400-42-24-S</b>	DC current transducer, split-core, 0-200, 0-300, 0-400A, 4-20 mA, 24 VAC/DC	1	0.45	\$154.00
<b>DCT500-42-24-F</b>	DC current transducer, fixed-core, Large Aperture, 0-500A, 4-20 mA, 24 VAC/DC	1	0.75	\$207.00
<b>DCT750-42-24-F</b>	DC current transducer, fixed-core, Large Aperture, 0-750A, 4-20 mA, 24 VAC/DC	1	0.75	\$214.00
<b>DCT1000-42-24-F</b>	DC current transducer, fixed-core, Large Aperture, 0-1000A, 4-20 mA, 24 VAC/DC	1	0.75	\$220.00
<b>DCT1200-42-24-F</b>	DC current transducer, fixed-core, Large Aperture, 0-1200A, 4-20 mA, 24 VAC/DC	1	0.75	\$227.00
<b>DCT100-10B-24-S</b>	DC current transducer, split-core, Bidirectional 100A, +/-10VDC, 24-45 VDC	1	0.45	\$177.00
<b>DCT200-10B-24-S</b>	DC current transducer, split-core, Bidirectional 200A, +/-10VDC, 24-45 VDC	1	0.45	\$177.00
<b>DCT300-10B-24-S</b>	DC current transducer, split-core, Bidirectional 300A, +/-10VDC, 24-45 VDC	1	0.45	\$177.00
Accessories				
<b>DRA-2</b>	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19 mm]	2	0.40	\$3.50

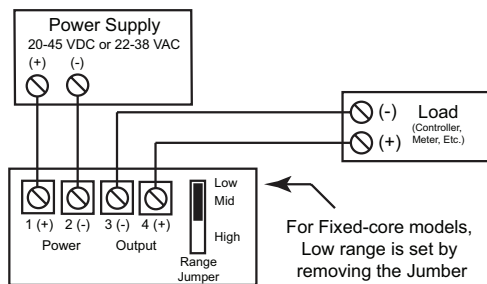
# ACUAMP® DCT Series DC Current Transducers

DCT Series Specifications		
Models Available	10B	42
Power Supply	20-45 VDC	20-45 VDC, 22-38 VAC; Units 500A and over 24 VAC/DC - use Class 2 power supply, Power and signal are isolated.
Power Consumption	2VA	
Output Signal	+/-10VDC	4-20 mA sourcing
Output Load	50kΩ minimum	500Ω maximum
Output Limit	11.5 VDC	23mA
Accuracy	Split-core: 2% FS	Fixed-core: 1% FS; Split-core: 2% FS
Response Time	Split-core: 100ms	Fixed-core: 20ms; Units 500A and over 100ms Split-core: 100ms
Repeatability	1.0% FS	1.0% FS
Input Ranges	Fixed 0-100A, 0-200A & 0-300A	Jumper selectable from 0 to 400A; Fixed ranges on units 500A and over
Sensing Aperture	Split-core: 0.85" [21.6 mm] sq.	Fixed-core: 0.75" [19.1 mm] dia.; Units 500A and over 1.77" [45mm] dia. Split-core: 0.85" [21.6 mm] sq.
Isolation Voltage	3kV (monitored line to output)	
Frequency Range	DC	
Case	UL 94V-0 Flammability Rated	
Environmental	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 (E197592), CE	

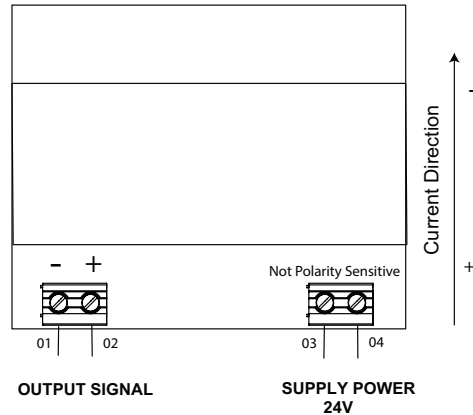
\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)

## Connections

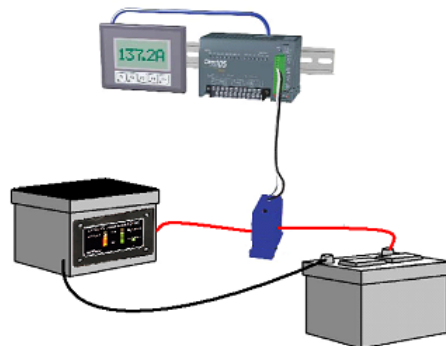
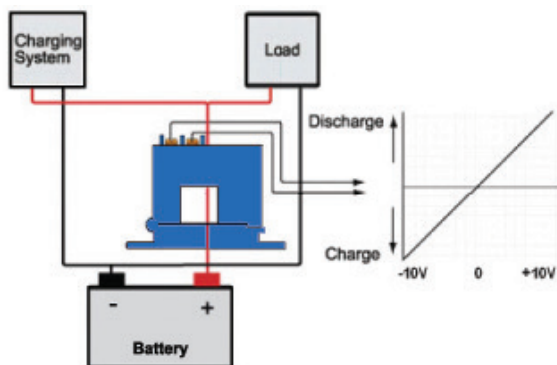
### Connection for units up to 400A



### Connection for units 500A and over



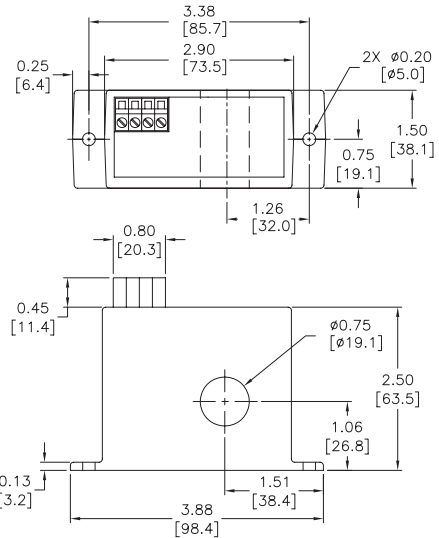
Our Bi-Directional DC Current Sensors provide an excellent means to monitor battery charging circuits by providing feedback during charging and during battery operation.



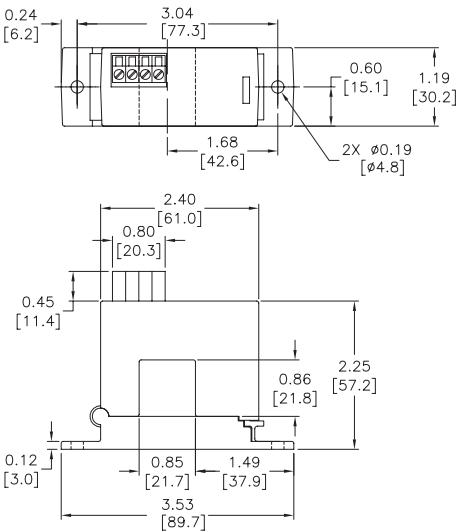
# ACUAMP® DCT Series DC Current Transducers

## Dimensions

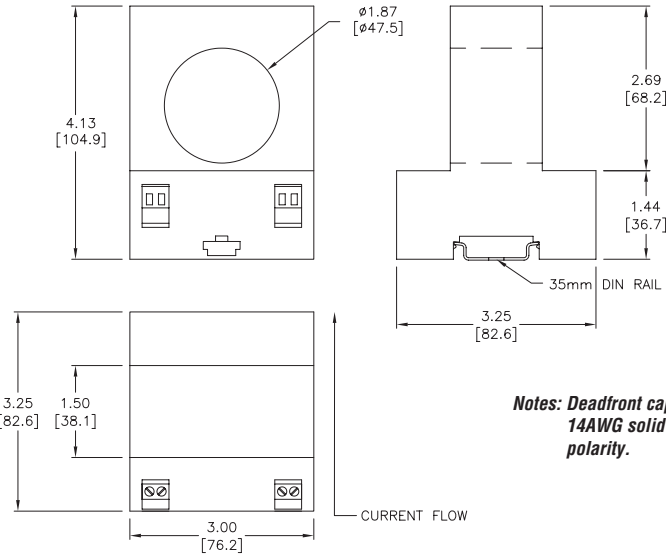
Inches [mm]



**DCT Series Fixed-Core**



**DCT Series Split-Core**



**DCT Series Fixed-Core - Units 500A and over**

**Notes: Deadfront captive screw terminals.  
14AWG solid or stranded. Observe polarity.**

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.

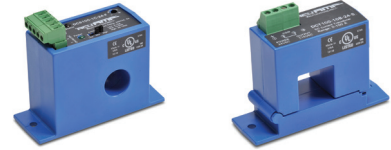
DCS series outputs are available in isolated solid state Normally Open and in Single Pole Double Throw (SPDT) relay configurations.

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

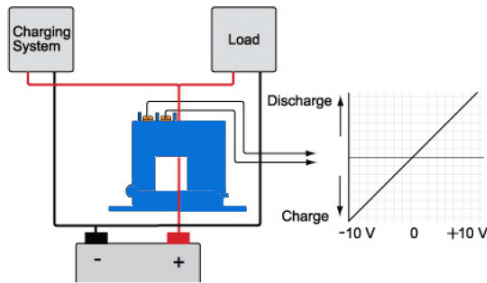
## Application Guide

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.

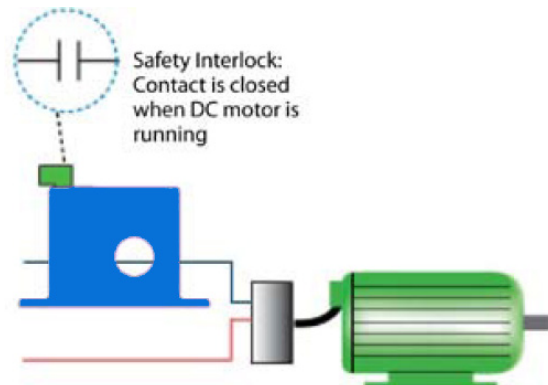
The bi-directional models allow the monitoring of batteries while they are being charged or consumed and can be used to trigger a warning if critical low levels are reached. They can also monitor the output of a photovoltaic array to make sure there is enough energy being generated to keep the process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

### Transducer

#### Battery Charging System - Bidirectional Output

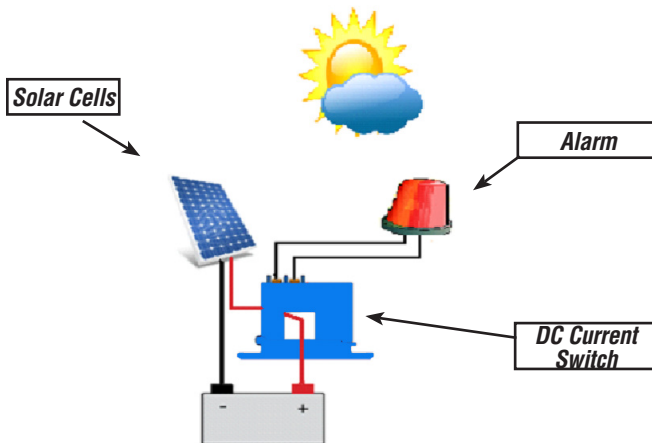


#### Failure Detection



### 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.