

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



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



| DCT Series DC Current Transducers | | | | |
|-----------------------------------|--|---------|---------|-------|
| Part Number | Description | Pcs/Pkg | Wt (lb) | Price |
| DCT100-42-24-F | DC current transducer, fixed-core, 0-50, 0-75, 0-100A, 4-20 mA, 24 VAC/DC | 1 | 0.35 | |
| DCT200-42-24-F | DC current transducer, fixed-core, 0-100, 0-150, 0-200A, 4-20 mA, 24 VAC/DC | 1 | 0.35 | |
| DCT100-42-24-S | DC current transducer, split-core, 0-50, 0-75, 0-100A, 4-20 mA, 24 VAC/DC | 1 | 0.45 | |
| DCT200-42-24-S | DC current transducer, split-core, 0-100, 0-150, 0-200A, 4-20 mA, 24 VAC/DC | 1 | 0.45 | |
| DCT400-42-24-S | DC current transducer, split-core, 0-200, 0-300, 0-400A, 4-20 mA, 24 VAC/DC | 1 | 0.45 | |
| DCT500-42-24-F | DC current transducer, fixed-core, Large Aperture, 0-500A, 4-20 mA, 24 VAC/DC | 1 | 0.75 | |
| DCT750-42-24-F | DC current transducer, fixed-core, Large Aperture, 0-750A, 4-20 mA, 24 VAC/DC | 1 | 0.75 | |
| DCT1200-42-24-F | DC current transducer, fixed-core, Large Aperture, 0-1200A, 4-20 mA, 24 VAC/DC | 1 | 0.75 | |
| DCT100-10B-24-S | DC current transducer, split-core, Bidirectional 100A, +/-10VDC, 20-45 VDC | 1 | 0.45 | |
| DCT200-10B-24-S | DC current transducer, split-core, Bidirectional 200A, +/-10VDC, 20-45 VDC | 1 | 0.45 | |
| DCT300-10B-24-S | DC current transducer, split-core, Bidirectional 300A, +/-10VDC, 20-45 VDC | 1 | 0.45 | |
| Accessories | | | | |
| DRA-2B | 35mm DIN rail adapters, 1.70"x0.45"x0.83" [43.7x11.4x21.0 mm] | 2 | 0.40 | |

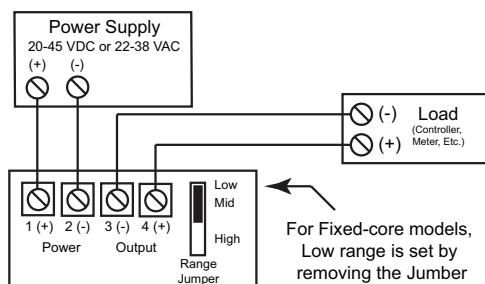
ACUAMP® DCT Series DC Current Transducers

| 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 | 50k Ω minimum | 500 Ω 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 | |

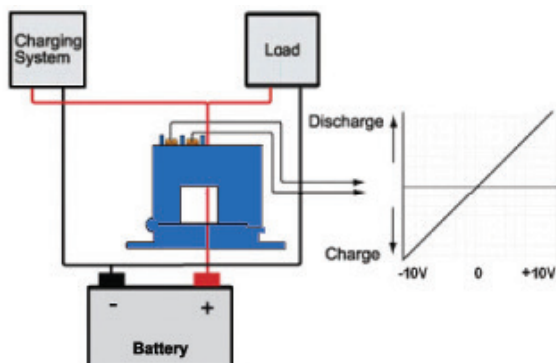
* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

Connections

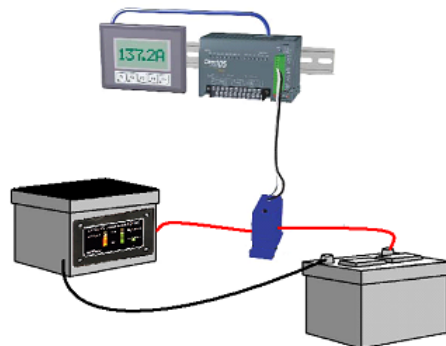
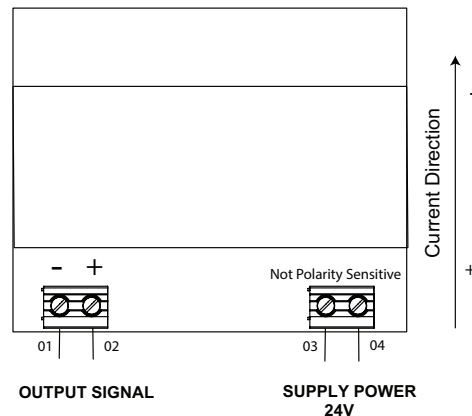
Connection for units up to 400A



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



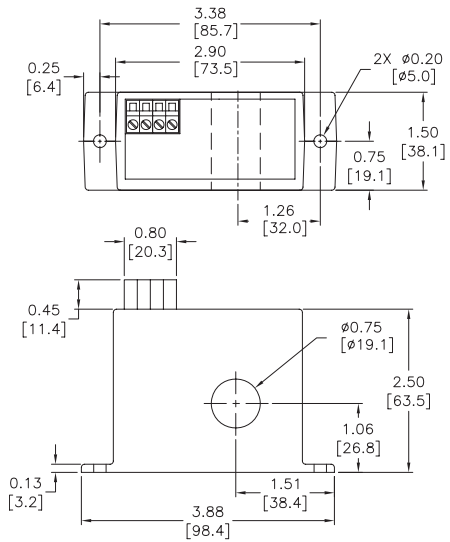
Connection for units 500A and over



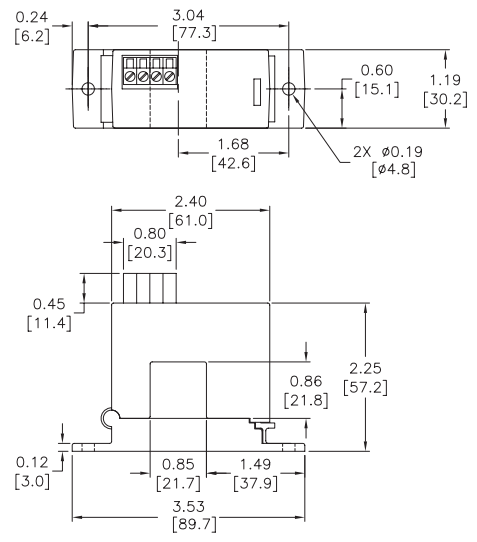
ACUAMP® DCT Series DC Current Transducers

Dimensions

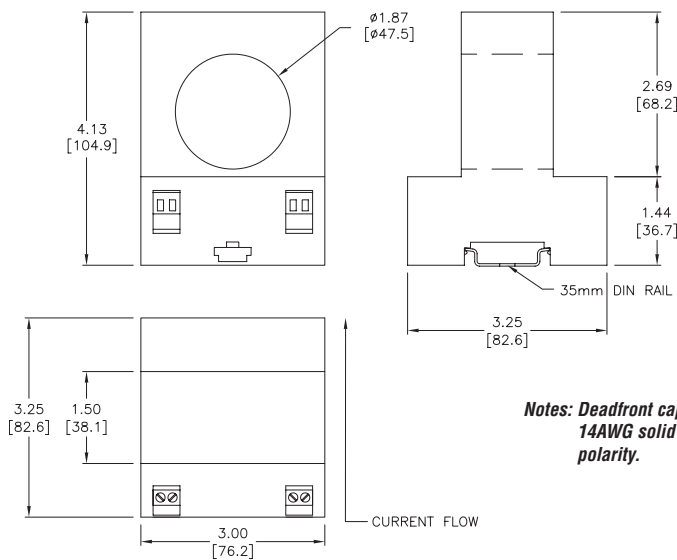
Inches [mm]



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
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.

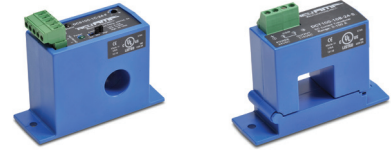
DCS series outputs are available in isolated solid state Normally Open and in Single Pole Double Throw (SPDT) relay configurations.

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 |
| Power Supply | 20-45 VDC*, 22-38 VAC | 24 VAC/DC, Use Class 2 power supply | 20-28 VAC/VDC |
| Power Consumption | 2VA | | |
| Setpoint (Trip point) | N/A | N/A | 11-Turn Potentiometer |
| Output Signal | 4-20 mA Sourcing +/- 10VDC (Bidirectional models only) | 4-20 mA Sourcing | N/A |
| Output Limit | 4-20 mA: 23mA 0-10 VDC: 11.5 VDC | 23mA | N/A |
| Output Loading | 4-20 mA: 500Ω max 0-10 VDC: 50kΩ min. | 500Ω max | N/A |
| Output Switch | N/A | | AE models: Normally Open Solid State 1C models: Single Pole Double Throw (SPDT) Relay |
| Switch Rating | 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 |
| Off State Leakage | N/A | | AE: <10μA; 1C: None |
| Accuracy | Fixed core: 1% FS, Split core: 2% FS | 2% FS | N/A |
| Current Ranges | 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 |
| Repeatability | 1% FS | 1% FS | 0.5% FS |
| Response Time | Fixed core: 20ms (to 90% of step change) Split core: 100ms (to 90% of step change) | 100ms (to 90% of step change) | 100ms (10% above setpoint), 20ms (100% above setpoint) |
| Hysteresis Approx | N/A | | 5% of setpoint |
| Isolation Voltage | 3KV | | |
| Frequency Range | DC | | |
| Case | UL 94V-0 Flammability Rated | | |
| Environmental | 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 | | |
| Sensing Aperture | 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

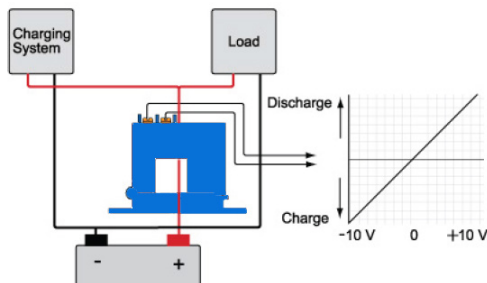
Application Guide

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.

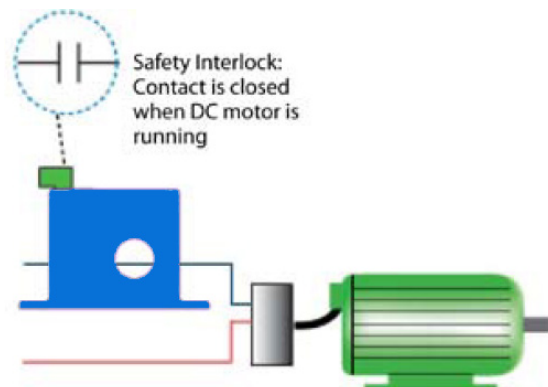
The bi-directional models allow the monitoring of batteries while they are being charged or consumed and can be used to trigger a warning if critical low levels are reached. They can also monitor the output of a photovoltaic array to make sure there is enough energy being generated to keep the process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

Transducer

Battery Charging System - Bidirectional Output

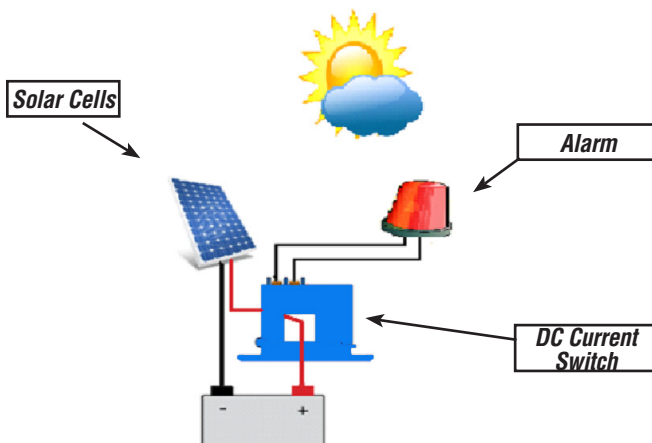


Failure Detection



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.



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