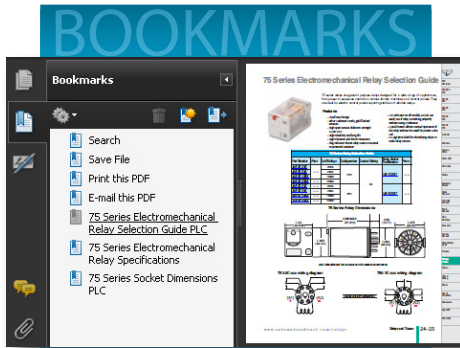


## ACUAMP® Current Sensors



In this interactive PDF you can:

- Use bookmarks to navigate by product category
- Use bookmarks to save, search, print or e-mail the catalog section
- Click on part #s to link directly to our online store for current pricing, specs, stocking information and more

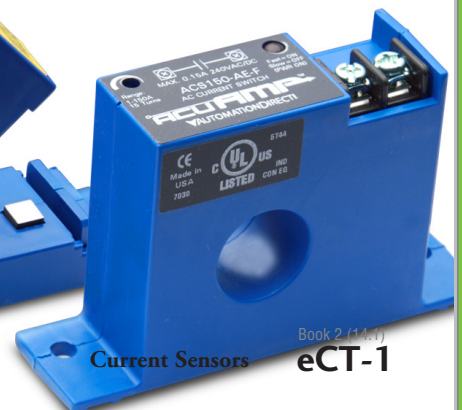
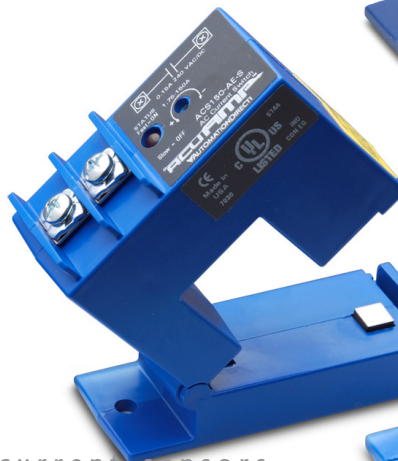
Up-to-date price list:  
[www.automationdirect.com/pricelist](http://www.automationdirect.com/pricelist)

FREE Technical Support:  
[www.automationdirect.com/support](http://www.automationdirect.com/support)

FREE Videos:  
[www.automationdirect.com/videos](http://www.automationdirect.com/videos)

FREE Documentation:  
[www.automationdirect.com/documentation](http://www.automationdirect.com/documentation)

FREE CAD drawings:  
[www.automationdirect.com/cad](http://www.automationdirect.com/cad)



Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Limit Switches

Sensors: Encoders

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

Appendix Book 2

Terms and Conditions

# ACUAMP® AC Current Switches, Transducers and Indicators

## Overview

The AcuAMP series of AC current sensors is a family of high-performance current sensors offering outstanding features, flexibility, and durability at an incredible price. Choose from a wide selection of current transducers, switches and indicators, all designed in a rugged industry-standard feed-through package, including both fixed core and split core models.

AcuAMP current sensors are available with a broad selection of input sensing ranges for maximum flexibility across many current ratings. The current transducer output choices include 4-20 mA, 24VDC loop-powered, and 0 to 10 volt self-powered analog outputs. The Current Switch outputs are isolated solid state switches and are available in Normally Open and Normally Closed configurations.

Models with output time delay are also offered in the Current Switch series. The ACL1 Current Indicator senses AC current ranging from 0.5 to 100A and requires no power for the indicating LED. These current sensors can be mounted in a panel (convenient DIN rail adapter accessory is available) or attached to the monitored conductor with a wire tie. Use the Selection Guide below to find the best sensor for your requirements.



## Selection Guide

AcuAMP AC Current Transducer Specifications by Model Type		
Specifications	Transducer	Transducer (True RMS)
Model	ACT	ACTR
<b>Input Range</b>	Jumper selectable: ACT005: 0 to 2A 0 to 5A ACT050: 0 to 10A 0 to 20A 0 to 50A ACT200: 0 to 100A 0 to 150A 0 to 200A ACT750: 0 to 375A 0 to 500A 0 to 750A ACT2000: 0 to 1000A 0 to 1333A 0 to 2000A	Jumper selectable (fixed and split core): ACTR005: 0 to 2A 0 to 5A ACTR050: 0 to 10A 0 to 20A 0 to 50A ACTR200: 0 to 100A 0 to 150A 0 to 200A ACTR750: 0 to 375A 0 to 500A 0 to 750A ACTR2000: 0 to 1000A 0 to 1333A 0 to 2000A Fixed range (flexible split core): ACTR500: 0 to 500A ACTR1000: 0 to 1000A ACTR2000: 0 to 2000A
<b>Output</b>	-10 models: 0–10 VDC, self-powered -42L models: 4–20 mA, loop-powered	4–20 mA, loop-powered true RMS
<b>Frequency Range</b>	-10 models: 50 to 60 Hz -42L models: 20 to 100 Hz sinusoidal waveforms only	10 to 400 Hz; (40 to 400 Hz flexible split core models) sinusoidal and non-sinusoidal waveforms
<b>Response Time</b>	-10 models: 100ms -42L models: 300ms	600ms
<b>Sensing Aperture</b>	ACT005, ACT050, ACT200: Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.6 mm] sq.  ACT750, ACT2000: 3.0 in [76.2 mm] dia.	ACTR005, ACTR050, ACTR200: Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.6 mm] sq. ACTR750, ACTR2000: Fixed core: 3.0 in [76.2 mm] dia. ACTR500, ACTR1000, ACTR2000: Split (flexible split core) core, 4.5 in [114.3mm] dia.



# AC Current Switches, Transducers and Indicator

AcuAMP AC Current Switch Specifications by Model Type							
Specifications	AC Current Switches						Indicator
Model	ACSN100	ACSN250	ACS150	ACSL	ACS200	ACSX	ACL1
<b>Input Range</b>	0 to 100A	0 to 250A	Fixed core: 1 to 150A Split core: 1.75 to 150A	0 to 150A	Jumper Selectable: Fixed core: 1 to 6A 6 to 40A 40 to 175A Split core: 1.75 to 6A 6 to 40A 40 to 200A	Jumper Selectable: Fixed core: 1.5 to 12A 12 to 55A 55 to 175A Split core: 2 to 12A 12 to 55A 55 to 200A	0 to 100A
<b>Setpoint (Trip Point)</b>	Non-adjustable: 0.5 A	Non-adjustable: Fixed core: 0.75A Split core: 1.25A	Adjustable: Fixed core: 1-150 A (15-turn potentiometer) Split core: 1.75-150 A (4-turn potentiometer) Monitored load current required to adjust setpoint	Adjustable (3/4-turn potentiometer): ACSL010: 1-10A ACSL020: 2-20A ACSL050: 10-50A ACSL100: 50-100A ACSL150: 100-150A Monitored load current not required to adjust setpoint	Adjustable: (4-turn potentiometer) Fixed core: 1-175A Split core: 1.75-200A Monitored load current required to adjust setpoint	Adjustable: Fixed core: 1.5-175A (15-turn potentiometer) Split core: 2-200A (4-turn potentiometer) Monitored load current required to adjust setpoint	Non-adjustable: 0.5 A
<b>Output</b>	Isolated solid state: Normally Open 0.15 A @ 120VAC or VDC	Isolated solid state: Normally Open 0.15 A @ 240VAC or VDC	Isolated solid state: Normally Open 0.15 A @ 240VAC or VDC Normally Closed 0.2 A @ 135VAC or VDC	Isolated solid state: Normally Open AC: 0.15 mA @ 240VAC; Normally Open AC: 0.2 mA @ 135VAC	Isolated solid state: Normally Open or Normally Closed AC model: 1A @ 240VAC Normally Open or Normally Closed DC model: 0.15 A @ 30VDC	Isolated solid state: Normally Open or Normally Closed AC model: 1A @ 240VAC Normally Open AC/DC model: 0.15 A @ 240 VAC/VDC Normally Closed AC/DC model: 0.2 A @ 135 VAC/VDC	LED Only (flashing, red)
<b>Frequency Range</b>	50 to 400 Hz	6 to 100 Hz	6 to 100 Hz	10 to 100 Hz	6 to 100 Hz	50 to 100 Hz	50 to 400 Hz
<b>Response Time</b>	N/A	120ms	120ms	100ms & 2s inrush delay	40 to 120 ms	Field adjustable time delay: 0.12 to 15 seconds	N/A
<b>Sensing Aperture</b>	0.30 in [8.13 mm] dia.	Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.7 mm] sq.	Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.7 mm] sq.	Fixed core: 0.55 in [13.97 mm] dia. Split core: 0.85 in [21.7 mm] sq.	Fixed core: 0.55 in [13.97 mm] dia. Split core: 0.85 in [21.7 mm] sq.	Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.7 mm] sq.	0.30 in [8.13 mm] dia.

# ACUAMP® AC Current Sensors, Switches and Transducers Application Guide

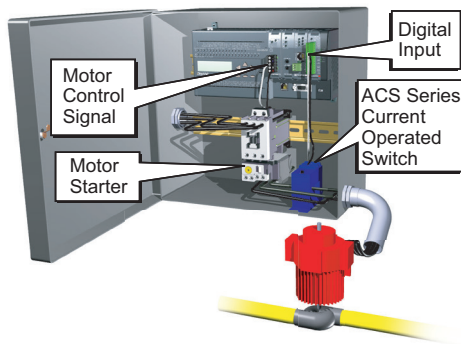
## Application Guide

ACUAMP current sensors are a great fit for many applications including material handling, fan and pump applications, and heating systems. With current transducers, current switches and current indicators, this sensor family gives you valuable data for processes ranging

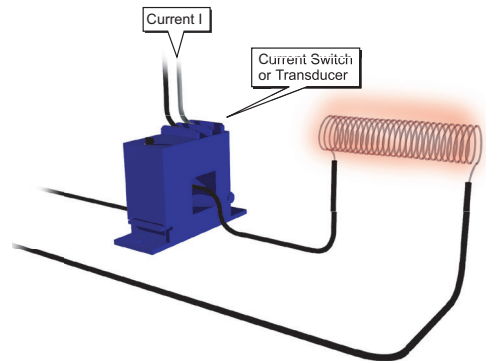
from monitoring loads to preventive maintenance. Models with the ability to read True RMS non-sinusoidal waveforms make it easy to monitor applications using variable frequency drives.

Use the application examples to help choose the best sensor model for your application.

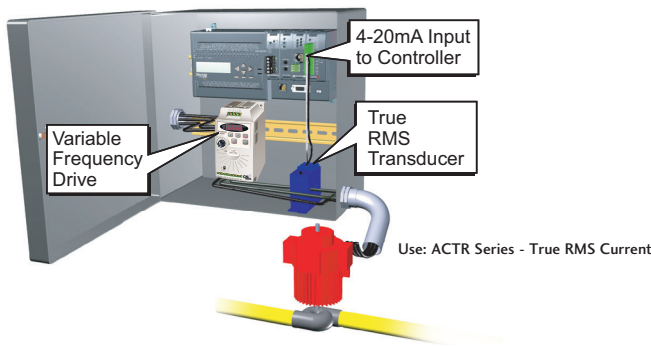
### Pump Jam & Suction Loss Protection



### Heater Life Prediction



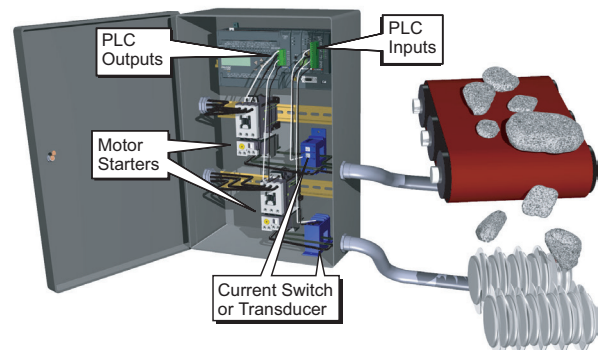
### Pump Load Monitoring



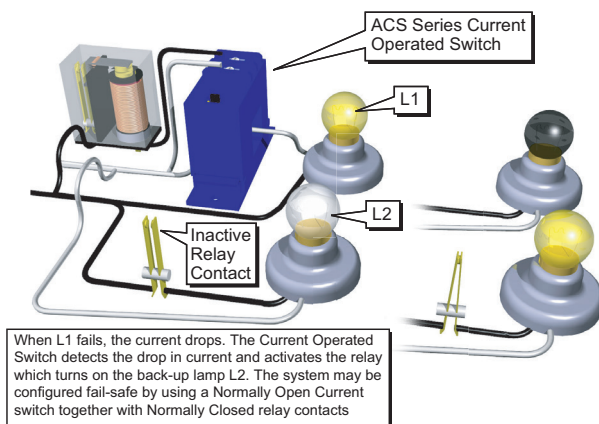
### Crusher/Grinder/Shredder Motor Interlocks

The performance of size reduction equipment like crushers or grinders can be optimized by controlling the in-feed in order to

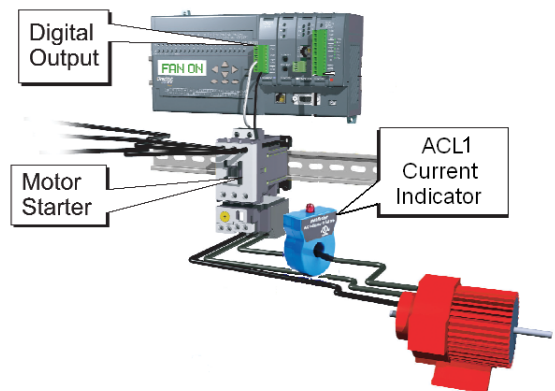
- Help prevent jamming
- Improve the uniformity of the resultant product
- Enhance overall production efficiency



### Lamp Failure Detection

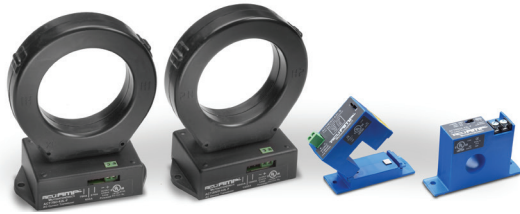


### Electric Motor Load Status





# ACUAMP<sup>®</sup> ACT Series AC Current Transducers



ACT current transducers combine a current transformer and signal conditioner into a single package. The ACT series has jumper-selectable current input ranges and industry standard 4-20 mA or 0-10 VDC outputs. The ACT series is designed for application on 'linear' or sinusoidal AC loads and is compatible with most PLCs, data loggers and SCADA systems. Full-scale input ranges are user-selectable from 2A to 2000A. This series is available in split-core or fixed-core models.

## Applications

### Automation Systems

- Analog current reading for remote monitoring and software alarms

### Data Loggers

- Self-powered transducer helps conserve data logger batteries
- Split-core enclosures make using portable data loggers easy

### Panel Meters

- Simple connection displays power consumption or other motor status

## Features

- Five-year warranty
- 4-20 mA or 0-10 VDC outputs
- Use up to 14AWG copper wire
- Factory matched and calibrated single piece transducer is more accurate than traditional two-piece field installed products.
- Average responding algorithm gives an RMS output on pure sine waves; perfect for constant speed (linear) loads or ON/OFF loads.
- Selectable input ranges allow end-users to tailor sensing ranges and improves the odds of having the right range for the job.
- Output is magnetically isolated from the input for safety and to eliminate voltage drop.
- Built-in feet with optional 35mm DIN rail adapter available.

## Agency Approvals



ACT Series AC Current Transducers				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
ACT050-10-F	AC current transducer, 0-10 VDC output, fixed core	1	0.30	\$85.50
ACT050-10-S	AC current transducer, 0-10 VDC output, split core	1	0.38	\$95.75
ACT200-10-F	AC current transducer, 0-10 VDC output, fixed core	1	0.30	\$90.75
ACT200-10-S	AC current transducer, 0-10 VDC output, split core	1	0.38	\$99.75
ACT005-42L-F	AC current transducer, 4-20 mA output, fixed core	1	0.30	\$73.50
ACT005-42L-S	AC current transducer, 4-20 mA output, split core	1	0.35	\$98.75
ACT050-42L-F	AC current transducer, 4-20 mA output, fixed core	1	0.30	\$75.50
ACT050-42L-S	AC current transducer, 4-20 mA output, split core	1	0.35	\$106.00
ACT200-42L-F	AC current transducer, 4-20 mA output, fixed core	1	0.30	\$109.00
ACT200-42L-S	AC current transducer, 4-20 mA output, split core	1	0.35	\$116.00
ACT750-42L-F	AC current transducer, 4-20 mA output, fixed core	1	2.0	\$180.00
ACT2000-42L-F	AC current transducer, 4-20 mA output, fixed core	1	2.0	\$237.00
Accessories				
DRA-2	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19 mm]	2	0.40	\$3.50

Maximum Input Ranges				
Model	Range	Maximum Input Amps		
		Continuous	6 Sec	1 Sec
ACT005, -F/S	0 to 2A	80	125	250
	0 to 5A	100	125	250
ACT050, -F/S	0 to 10A	80	125	250
	0 to 20A	110	150	300
	0 to 50A	175	215	400
ACT200, -F/S	0 to 100A	200	300	600
	0 to 150A	300	450	800
	0 to 200A	400	500	1000
ACT750, -F	0 to 375A	750	1500	3750
	0 to 500A	750	1500	3750
	0 to 750A	750	1500	3750
ACT2000, -F	0 to 1000A	2000	4000	10k
	0 to 1333A	2000	4000	10k
	0 to 2000A	2000	4000	10k

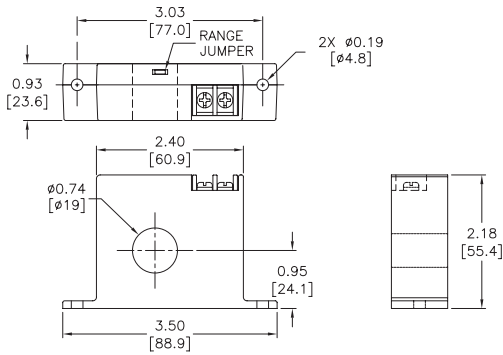
ACT Series Specifications			
Specifications	10 Models	42L Models up to 200A	42L Models 375 to 2000A
Power Supply	Self-powered	24VDC loop nominal, 40VDC max	24VDC nominal; 40VDC maximum
Output Signal	0 to 10 VDC	4 - 20 mA, Loop powered (sinking)	4 - 20 mA, Loop powered (sinking)
Output Limit	15VDC	32mA	23mA
Output Load	1MΩ minimum 100kΩ (add 1.3% to accuracy)	600Ω maximum @ 24VDC	600Ω maximum @ 24VDC
Accuracy	1% full scale	1% full scale	1% full scale
Response Time (10-90% step change)	100ms	300ms	600ms
Input Ranges	Field selectable from 0 to 200A		Field selectable from 375 to 2000 A
Sensing Aperture	Fixed core: 0.74" [19mm] diameter; Split core: 0.85" [21.6 mm] sq.		3.0" [76.2 mm] diameter
Isolation Voltage	UL listed to 1,270VAC. Tested to 5,000VAC (1 minute max)		600VAC
Frequency Range (for sinusoidal waveforms)	50 to 60 Hz	20 to 100 Hz	50 to 60 Hz
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 (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)

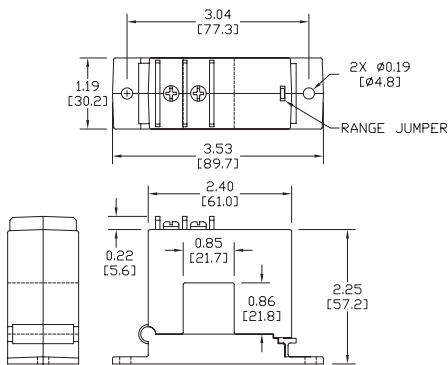
# ACUAMP<sup>®</sup> ACT Series AC Current Transducers

## Dimensions

Inches [mm]

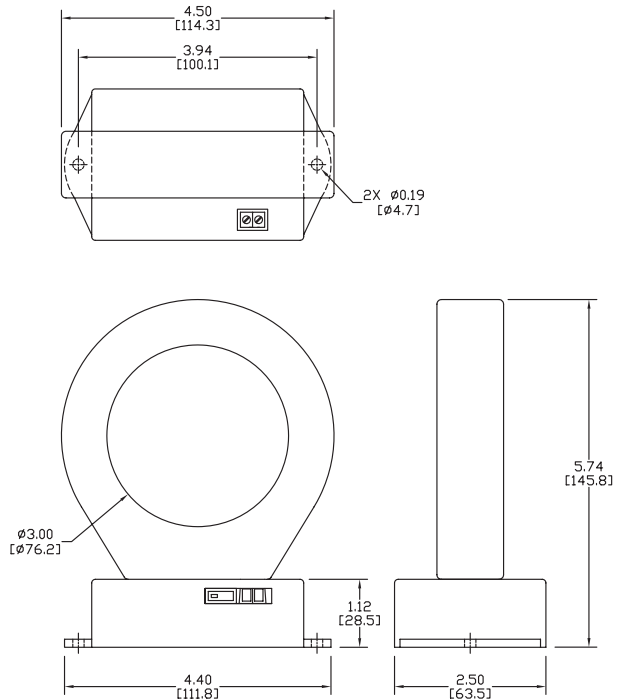
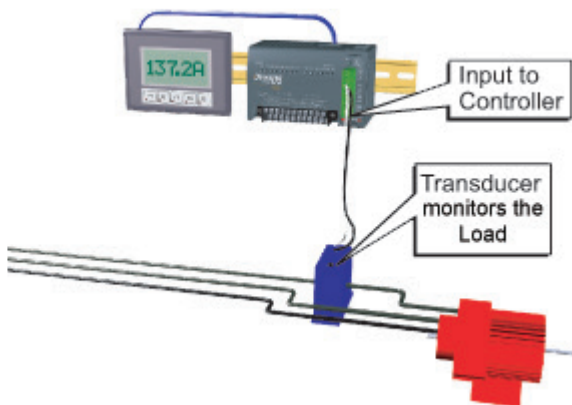


**ACT Series, 2 to 200 Amp Fixed Core**



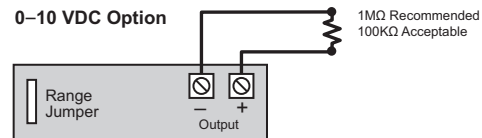
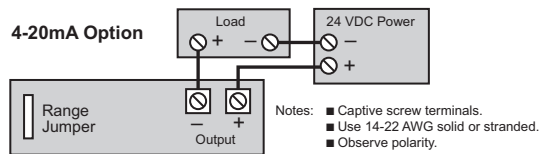
**ACT Series, 2 to 200 Amp Split Core**

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



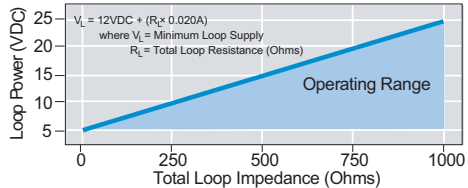
**ACT Series, 200 to 2000 Amp Fixed Core**

## Connections ACT Series, 0 to 200 Amp

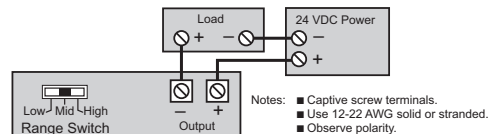


Terminals are #6 screws.

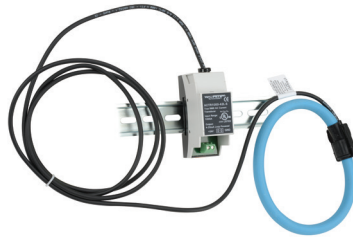
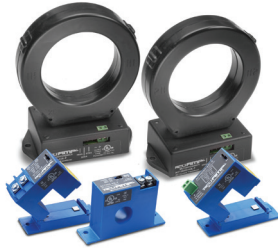
## Power Supply (4-20mA output only)



## Connections ACT Series, 200 to 2000 Amp



# ACUAMP<sup>®</sup> ACTR Series AC Current Transducers



## Why use ACTR transducers?

The current waveform of a typical linear load is a pure sine wave. However, in VFD and SCR applications the output waveforms are rough approximations of a sine wave and are non-sinusoidal. Each cycle will contain numerous spikes and dips.

The ACTR transducers use a mathematical algorithm called "True RMS," which integrates the actual waveform over time. The output is the amperage component of the true power (heating value) of the AC current waveform. True RMS is the only way to accurately measure distorted AC waveforms. Select ACTR transducers for non-linear loads or in "noisy" power environments.

## Applications

### VFD Controlled Loads

- VFD output indicates how the motor and attached load are operating.

### SCR Controlled Loads

- Accurate measurement of phase angle fired SCRs. Current measurement gives faster response than temperature measurement.

### Switching Power Supplies and Electronic Ballasts

- True RMS sensing is the most accurate way to measure power supply or ballast input power.

## Features

- Five-year warranty
- 4-20 mA output only
- True RMS technology is accurate on distorted waveforms such as VFD or SCR outputs.
- Choice of jumper-selectable ranges reduces inventory and eliminates zero and span pots.
- Output is magnetically isolated from the input for safety and eliminates voltage drop.
- Built-in feet with optional 35mm DIN rail adapter available.

## Agency Approvals



ACTR Series AC Current Transducers				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
ACTR005-42L-F	AC current transducer with true RMS, 4-20 mA output, fixed core	1	0.30	\$136.00
ACTR005-42L-S	AC current transducer with true RMS, 4-20 mA output, split core	1	0.36	\$155.00
ACTR050-42L-F	AC current transducer with true RMS, 4-20 mA output, fixed core	1	0.30	\$126.00
ACTR050-42L-S	AC current transducer with true RMS, 4-20 mA output, split core	1	0.36	\$157.00
ACTR200-42L-F	AC current transducer with true RMS, 4-20 mA output, fixed core	1	0.30	\$128.00
ACTR200-42L-S	AC current transducer with true RMS, 4-20 mA output, split core	1	0.36	\$160.00
ACTR500-42L-S	AC current transducer with true RMS, 4-20 mA output, flexible split core	1	0.60	\$295.00
ACTR750-42L-F	AC current transducer with true RMS, 4-20 mA output, fixed core	1	2.00	\$207.00
ACTR1000-42L-S	AC current transducer with true RMS, 4-20 mA output, flexible split core	1	0.60	\$320.00
ACTR2000-42L-F	AC current transducer with true RMS, 4-20 mA output, fixed core	1	2.00	\$267.00
ACTR2000-42L-S	AC current transducer with true RMS, 4-20 mA output, flexible split core	1	0.60	\$320.00
Accessories				
DRA-2	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19 mm]	2	0.40	\$3.50

Maximum Input Ranges				
Model	Range	Maximum Input Amps		
		Continuous	6 Sec	1 Sec
ACTR005, -F/-S	0 to 2A	80	125	250
	0 to 5A	100	125	250
ACTR050, -F/-S	0 to 10A	80	125	250
	0 to 20A	110	150	300
	0 to 50A	175	215	400
ACTR200, -F/-S	0 to 100A	200	300	600
	0 to 150A	300	450	800
	0 to 200A	400	500	1000
ACTR500, -S	0 to 500A	4000	4400	5000
ACTR750, -F	0 to 375A	750	1500	3750
	0 to 500A	750		
	0 to 750A	750		
ACTR1000, -S	0 to 1000A	4000	4400	5000
ACTR2000, -F	0 to 1000A	2000	4000	10 k
	0 to 1333A	2000		
	0 to 2000A	2000		
ACTR2000, -S	0 to 2000A	4000	4400	5000

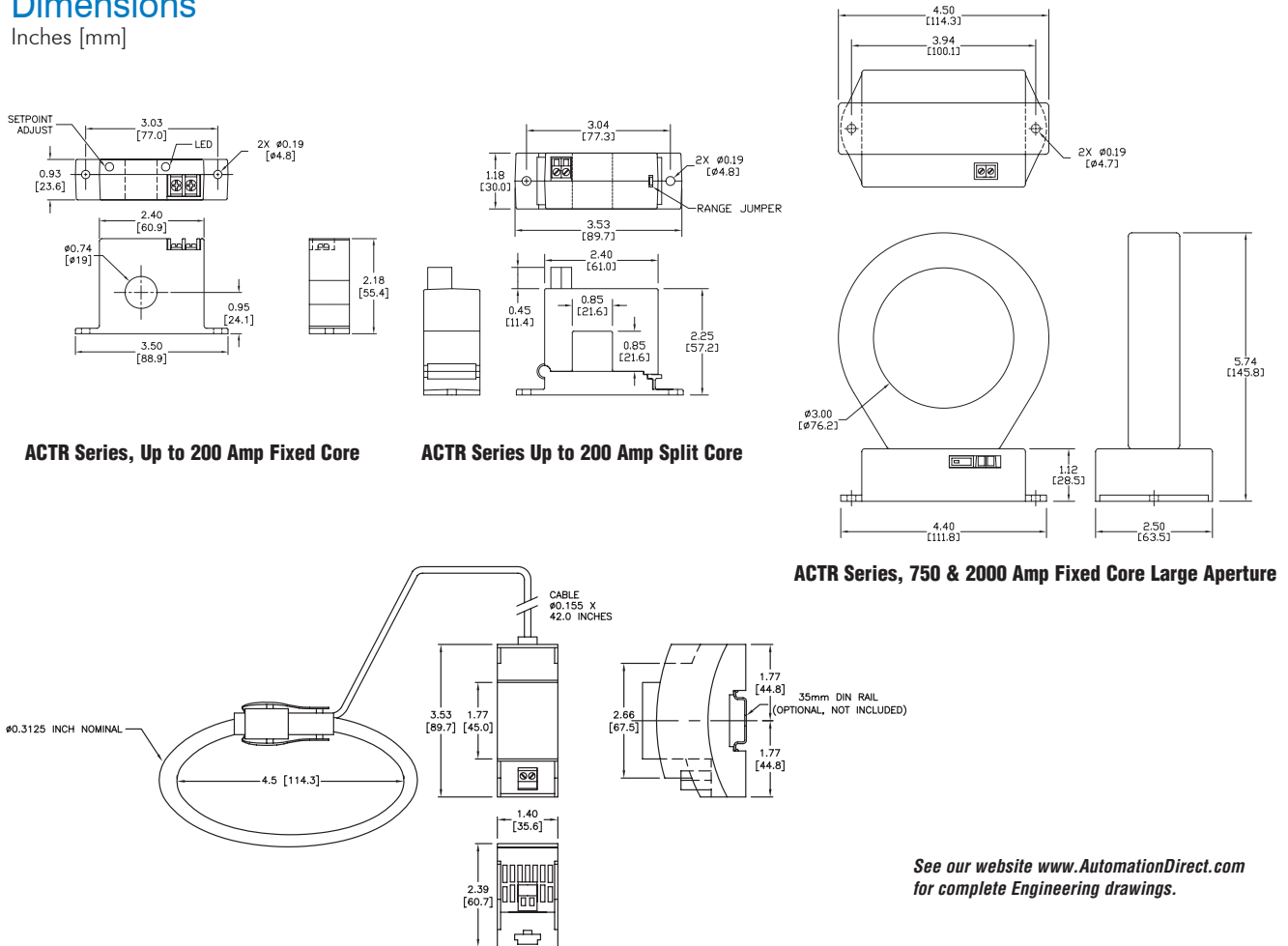
# ACUAMP<sup>®</sup> ACTR Series AC Current Transducers

ACTR Series Specifications			
Specifications	42L Models up to 200 Amp	42L-F Models 750 & 2000 Amp	42L-S Models 500, 1000 & 2000 Amp
<b>Power Supply</b>	24VDC nominal, (12 to 40 VDC) loop powered (sinking)	24VDC nominal, (40VDC max), loop powered (sinking)	24VDC Nominal, 22-36 Volts Use Class 2 power supply or limited power supply only
<b>Output Signal</b>	4 -20 mA, loop powered (sinking), true RMS		
<b>Output Limit</b>	112% of standard output range maximum valve		
<b>Loading</b>	600Ω @ 24VDC		500Ω maximum
<b>Accuracy</b>	1.0% FS (10-100% of range)		
<b>Response Time</b>	600ms		
<b>Input Ranges</b>	Field selectable from 0 to 200A	Field selectable from 375 to 2000A	Fixed: 500, 1000 or 2000A
<b>Sensing Aperture</b>	Fixed core: 0.74" [19mm] dia. Split core: 0.85" [21.6 mm] sq.	Fixed core: 3.0" [76.2 mm] dia.	4.5 in [114.3 mm] dia.
<b>Isolation Voltage</b>	UL listed to 1,270VAC, Tested to 5,000VAC (1 min. max)	UL listed to 600V	UL listed to 3,500VAC
<b>Frequency Range</b>	10 to 400 Hz		40 to 400 Hz
<b>Case</b>	UL 94 V-0 flammability rating		
<b>Environmental</b>	Operating Temperature: -4 to 122°F [-20 to 50°C]		
	Relative Humidity: 0-95% RH, Non-condensing		
	Pollution Degree 2		
	Altitude to 2000 meters		
<b>Agency Approvals*</b>	UL/cUL (E222847), CE		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)

## Dimensions

Inches [mm]



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

ACTR Series 500, 1000 & 2000 Amp Base & Flexible Split Core Loops



# ACUAMP<sup>®</sup> ACTR Series AC Current Transducers

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Limit Switches

Sensors: Encoders

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

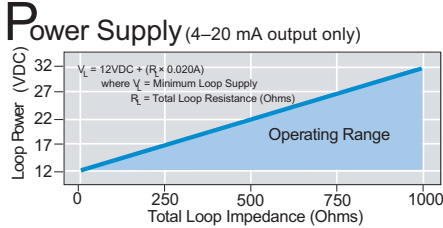
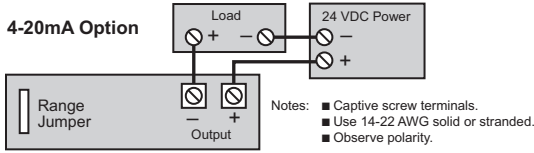
Pneumatics: Tubing

Pneumatics: Air Fittings

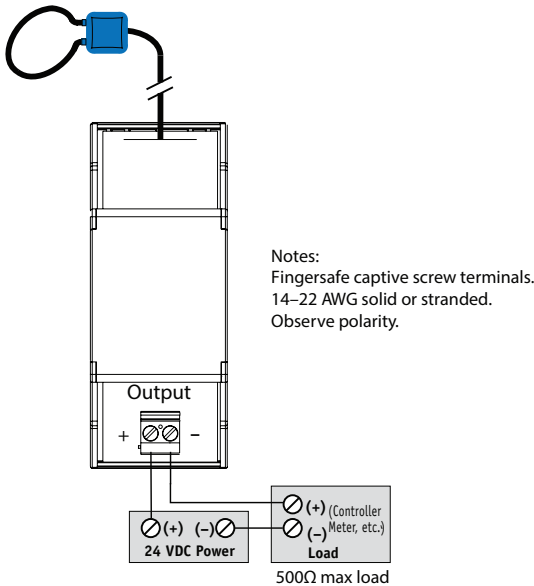
Appendix Book 2

Terms and Conditions

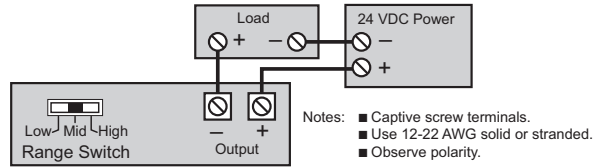
## Connections ACTR Series, Up to 200 Amp



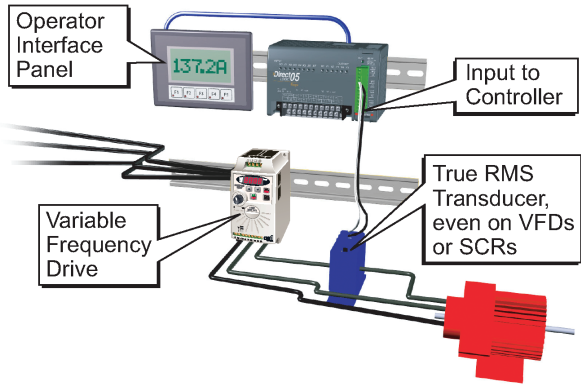
## Connections ACTR Series, Flexible Split Core 500, 1000 & 2000 Amp



## Connections ACTR Series, 750 & 2000 Amp



## Application Examples





# ACSN100 Series AC Current Switch



The ACSN100 series compact case current sensing switch is a compact, inexpensive, easy-to-use ring which slips onto a conductor to give a solid-state contact for indication of current flow. Ideal for use in control panels or wherever confirmation of current flow is desired, the ACSN100 current sensing switch is a cost-effective way to detect live conductors and see current flow to fans, heaters, pumps, lighting or other AC powered devices.

## Applications

### Electronic proof of flow

- Current sensing switches eliminate the need for multiple pipe or duct penetrations and is more reliable than electromechanical pressure or flow switches.

### Electric Motors

- Quick reporting of load status.

### Electrical Heaters

- Faster response than temperature sensors.

### Lighting Circuits

- Easier to install and more accurate than photocells.

## Features

- Five-year warranty
- N.O. solid-state switch for control circuits up to 120 VAC/VDC.
- No adjustment needed for “Go/No Go” status indication.
- Detects currents as low as 0.5 A with a single conductor pass, eliminates the need to wrap conductors multiple times to increase sensitivity.
- No moving parts provide a nearly unlimited number of operations, and powered from the monitored circuit.
- Normally open connection. Connect the 24 inch leads to a local controller or to a terminal block for remote operation.

## Agency Approvals



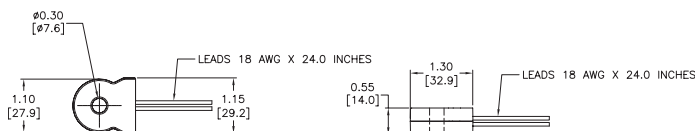
ACSN100 AC Current Switch				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
ACSN100-AE-F	N.O. non-adjustable AC current switch, fixed core enclosure	1	0.07	\$28.00
ACSN100 Series Specifications				
<b>Monitored Circuit</b>	0-100A, 600VAC line-to-line max			
<b>Frequency Range</b>	50-400 Hz			
<b>Output Switch</b>	Solid-state, normally open, 150mA, 120 VAC/DC (not polarity sensitive)			
<b>Setpoint (Trip Point)</b>	Non-adjustable, 0.5 A (reset point -4.75 A)			
<b>Aperture</b>	0.30" ID			
<b>Case</b>	UL94V-0 Flammability Rating			
<b>Mounting</b>	Slides directly onto monitored conductor			
<b>Lead Wire</b>	18AWG UL Style 1007/1569 PVC insulation			
<b>Isolation Voltage</b>	3kV (monitored line to output)			
<b>Environmental</b>	Operating temperature: -4 to 122°F [-20 to 50°C]			
	Relative humidity: 0-95% RH, Non-condensing			
	Pollution Degree 2			
	Altitude to 2000 meters			
<b>Agency Approvals*</b>	UL/cUL (E222847), CE			

Maximum Input Amps		
Continuous	6 Sec.	1 Sec.
100	400	1000

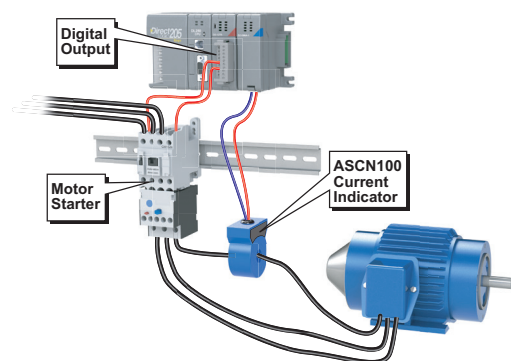
\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)

## Dimensions

Inches [mm]

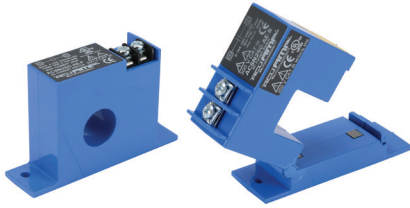


See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.





# ACSN250 Series AC Current Switches



## Applications

### Electronic proof of flow

- Current sensing switches eliminate the need for multiple pipe or duct penetrations and is more reliable than electromechanical pressure or flow switches.

### Conveyors

- Detects jams and overloads.
- Interlocks multiple conveyor sections.

### Lighting Circuits

- Easier to install and more accurate than photocells.

### Electrical Heaters

- Faster response than temperature sensors.

## Features

- Five-year warranty
- N.O. solid-state switch for control circuits up to 240 VAC/VDC.
- No adjustment needed for “Go/No Go” status indication.
- Self-powered operation cuts installation time and operating costs.
- Choose fixed-core or split-core enclosure style. Split-core allows easy installation on existing systems; fixed-core offers a more compact package for OEM or new installations.
- Built-in mounting feet with optional 35mm DIN rail adapter available.

## Agency Approvals



The ACSN250 series current switches combine a current transformer, signal conditioner and limit alarm into a single package for use in status monitoring or proof of operation applications. Offering universal, solid-state outputs, the self-powered non-adjustable setpoint ACSN250 series can provide digital indication across a broad range of applications. Models are available in a fixed-core or split-core case to maximize ease of installation.

ACSN250 AC Current Operated Switches				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
ACSN250-AE-F	N.O. non-adjustable AC current switch, fixed core enclosure	1	0.25	\$47.00
ACSN250-AE-S	N.O. non-adjustable AC current switch, split core enclosure	1	0.30	\$57.00
Accessories				
DRA-2	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19 mm]	2	0.40	\$3.50

Maximum Amps				
Type	Range	Maximum Input Amps		
		Continuous	6 Sec.	1 Sec.
Fixed Core	0-250A	250	400	1000
Split Core	0-250A	250	400	1000

ACSN250 Series Specifications	
Power Required	None - self powered
Output Switch	Isolated solid-state switch, normally open
Switch Rating	0.15 A, 240 VAC/VDC
Off State Leakage	<10µA
Response Time	120ms
Hysteresis	Approximately 5% of setpoint
Setpoint (Trip Point)	Fixed core: 0.75 A max Split core: 1.25 A max
Setpoint Adjust	Non-adjustable
Isolation Voltage	UL Listed to 1,270VAC
Monitored Circuit	600VAC line-to-line, 0-250A
Frequency Range	6-100 Hz
Aperture	Fixed core: 0.75" [19mm] ID Split core: 0.85" [21.7 mm] ID
Case	UL94V-0 Flammability Rating
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 (E222847), CE

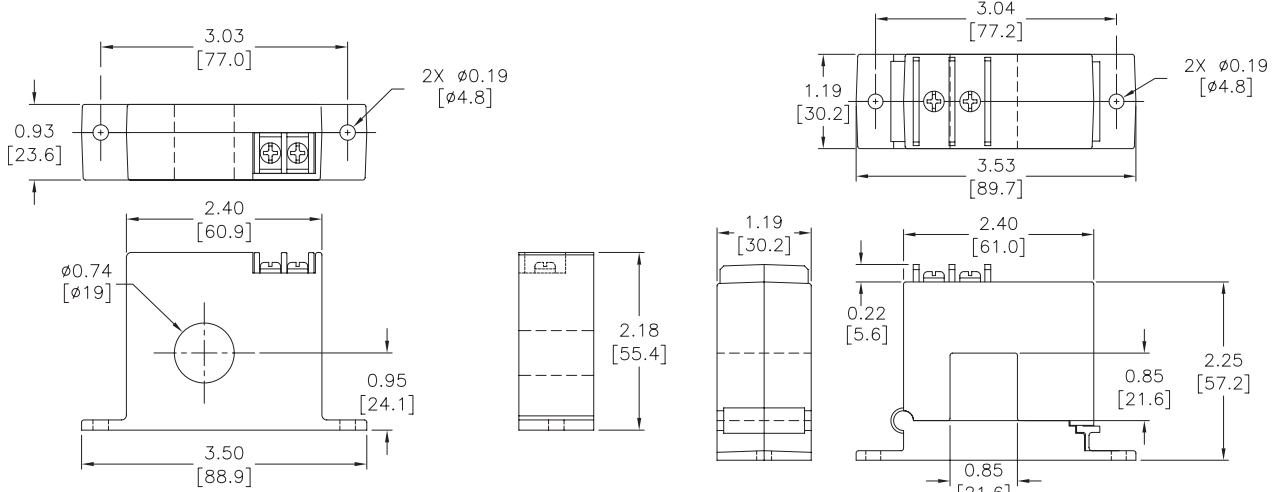
\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)



# ACSN250 Series AC Current Switches

## Dimensions

Inches [mm]

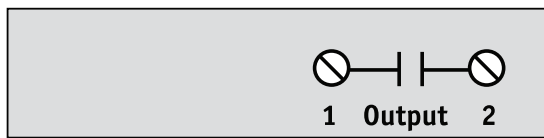


**ACSN250 Fixed Core**

**ACSN250 Split Core**

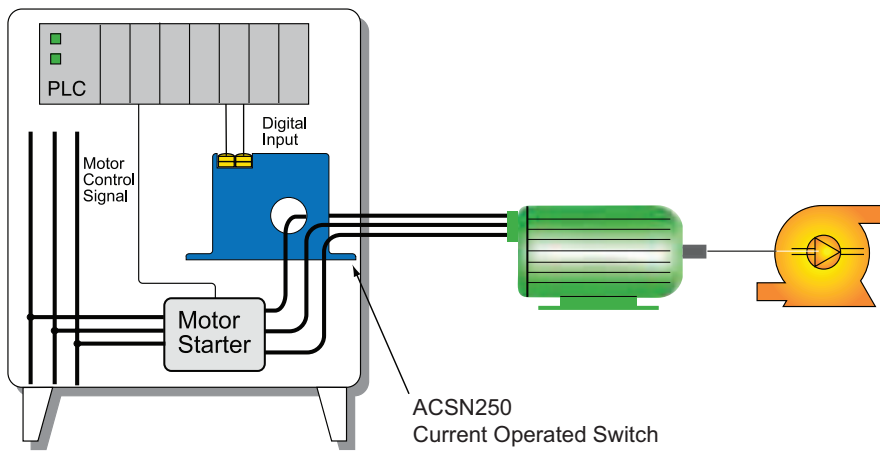
## Connection ACSN250 Series

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



Terminals are #6 screws  
Use up to 14 AWG copper wire

## Application Example







# ACS150 Series AC Current Switches

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Limit Switches

Sensors: Encoders

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

Appendix Book 2

Terms and Conditions

## Applications

### Electronic Proof of Flow

- Current operated switch eliminates the need for multiple pipe or duct penetrations.
- More reliable than electromechanical pressure or flow switches.

### Conveyors

- Detect jams and overloads; useful when interlocking multiple conveyor sections

### Heating Circuits

- Detect ON/OFF status; faster response times than with temperature sensors.

### Loss of Load Detective

- Detect belt or coupling breaks with fast response times

### Lighting Circuits

- Easier and faster than photocells

## Features

- Five-year warranty
- Choose from:  
N.O. 0.15 A @ 240VAC or VDC or  
N.C. 0.20 A @ 135VAC or VDC output options.
- Status LED provides visual indication of setpoint trip and contact action.
- Self-powered operation cuts installation time and operating costs.
- Potentiometer-adjustable trip points speed start-up and allow for tailored operation.
- Choose either split-core or fixed-core enclosure style. Split-core packages allow easy installation on existing systems; fixed-core enclosures offer more compact package for OEM or new installations.
- Built-in feet with optional 35mm DIN rail adapter available.



ACS150 Series current operated switches combine a current transformer, signal conditioner and limit alarm into a single package for use in monitoring or proof of operation applications. Offering an adjustable setpoint range of 1 to 150 amps and universal, solid-state outputs, the self-powered ACS150 can be tailored to provide accurate and dependable digital indication of over-current conditions across a broad range of applications. The ACS150 is available in fixed-core and split-core models.



ACS150 AC Current Operated Switches				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
ACS150-AE-F	N.O. AC adjustable current switch in fixed core enclosure	1	0.30	\$63.50
ACS150-AE-S	N.O. AC adjustable current switch in split core enclosure	1	0.35	\$77.50
ACS150-CE-F	N.C. AC adjustable current switch in fixed core enclosure	1	0.30	\$63.50
ACS150-CE-S	N.C. AC adjustable current switch in split core enclosure	1	0.35	\$77.50
Accessories				
DRA-2	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19 mm]	2	0.40	\$3.50

ACS150 Maximum Input Ranges				
Type	Input Range	Maximum Input Amps		
		Continuous	6 Sec. max	1 Sec. max
Fixed Core	1 to 150A	150	400	1000
Split Core	1.75 to 150A	150	400	1000

ACS150 Series Specifications	
Power Supply	None - Self-powered
Output	Isolated solid-state switch
Output Rating	N.O. 0.15 A @ 240VAC or VDC N.C. 0.20 A @ 135VAC or VDC
Response Time	120ms
Off State Leakage	<10µA
Setpoint (Trip Point)	Fixed core: 1 to 150A. Split core: 1.75 to 150A
Hysteresis	5% of Setpoint
Setpoint (Trip Point) Adjust	Fixed core: 15-turn potentiometer.; Split core: 4-turn potentiometer
Overload (1 second duration)	1,000A
Isolation Voltage	UL listed to 1,270VAC. Tested to 5,000VAC (1 minute max)
Frequency Range	6 to 100 Hz
Case	UL 94V-0 flammability rated
Environmental	Operating Temperature: -58 to 149°F [-50 to 65°C]
	Relative Humidity: 0-95% RH, Non-condensing
	Pollution Degree 2
	Altitude to 2000 meters
Agency Approvals*	UL/cUL (E222847), CE

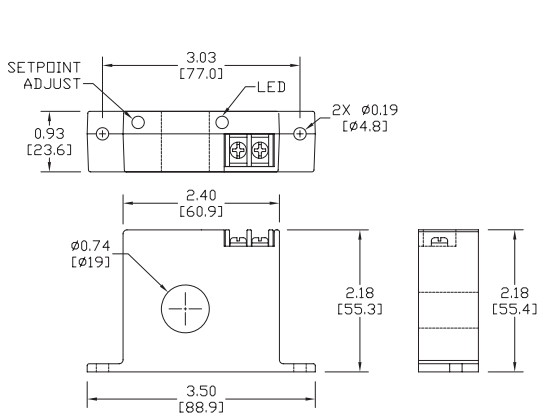
\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)



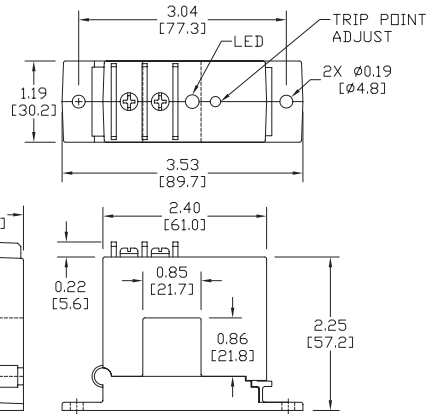
# ACS150 Series AC Current Switches

## Dimensions

Inches [mm]



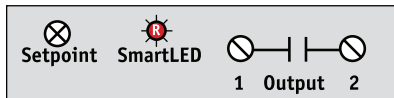
ACS150 Series Fixed Core



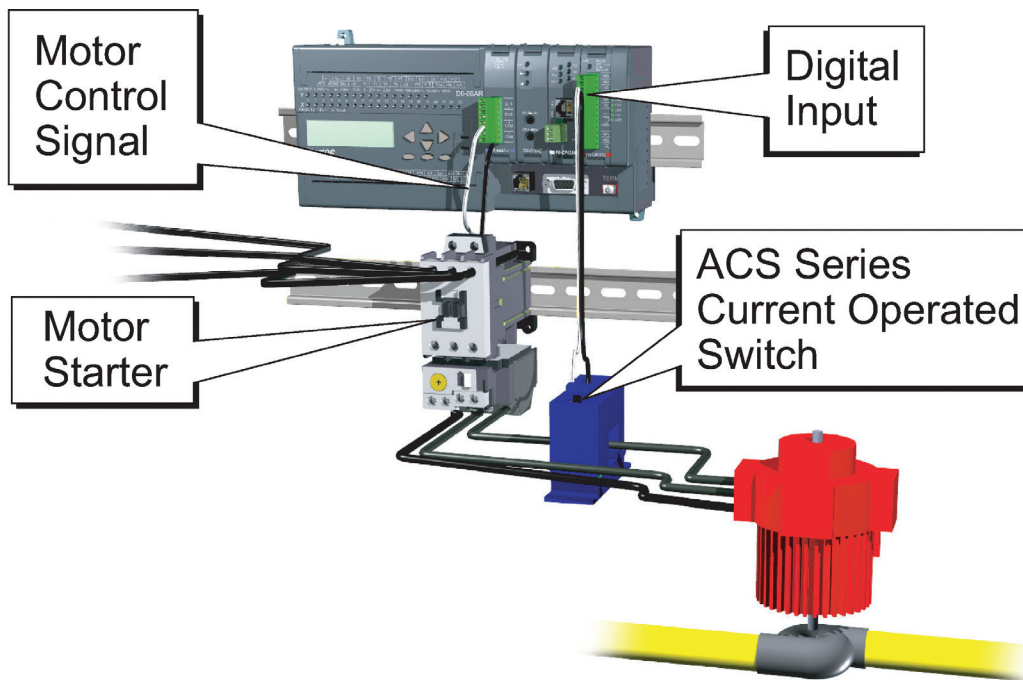
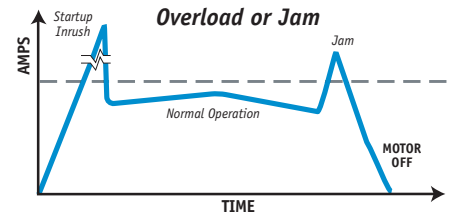
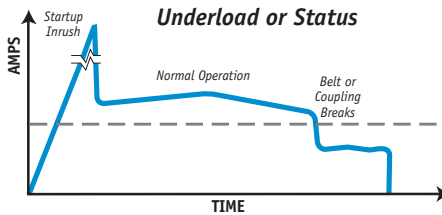
ACS150 Series Split Core

## Connections

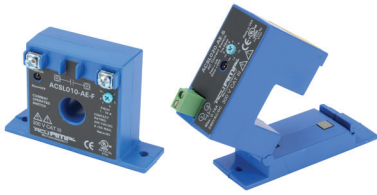
See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.



Terminals are #6 screws  
Use up to 14 AWG copper wire



# ACUAMP<sup>®</sup> ACSL Series AC Current Switches



The ACSL series current sensing switches provide a current operated solid-state contact powered from the monitored circuit. The trip point adjustment uses a single turn potentiometer, allowing the installer to set the trip point without the monitored load present. The sensor installs over the conductor.

## Applications

### AC motor loads

- Set the contact to close at normal running current level and it will open if the drive belt breaks or comes off the sheaves.
- Monitor up to 150A loads.

### Critical lighting loads

- Monitor security lighting and water navigational indicators.

### Heating loads

- Receive independent verification that an element is working properly.
- Monitor drying and curing processes remotely.

## Features

- Five-year warranty
- Single-turn potentiometer setpoint selection with trip point indicated on the labeling
- Setpoint can be set without monitored load present
- Two second delay before contact action upon initial energization allowing the output to ignore motor inrush current.
- Status LED provides visual indication of setpoint trip and contact action.
- Self-powered operation cuts installation time and operating costs.
- Output is magnetically isolated from the input for safety.
- Choose either split-core or fixed-core enclosure style. Split-core packages allow easy installation on existing systems; fixed-core enclosures offer a more compact package for OEM or new installations.
- Built-in feet with optional 35mm DIN rail adapter available.

## Agency Approvals



ACSL AC Current Operated Switches					
Part Number	Description	Trip Range Adjustment	Pcs/Pkg	Wt (lb)	Price
ACSL010-AE-F	N.O. AC adjustable trip range current switch in fixed core enclosure	1-10A	1	0.25	\$69.00
ACSL020-AE-S	N.O. AC adjustable trip range current switch in split core enclosure	2-20A	1	0.30	\$79.00
ACSL050-AE-F	N.O. AC adjustable trip range current switch in fixed core enclosure	10-50A	1	0.25	\$69.00
ACSL050-AE-S	N.O. AC adjustable trip range current switch in split core enclosure	20-50A	1	0.30	\$79.00
ACSL100-AE-F	N.O. AC adjustable trip range current switch in fixed core enclosure	50-100A	1	0.25	\$69.00
ACSL100-AE-S	N.O. AC adjustable trip range current switch in split core enclosure	50-100A	1	0.30	\$79.00
ACSL150-AE-F	N.O. AC adjustable trip range current switch in fixed core enclosure	100-150A	1	0.25	\$69.00
ACSL150-AE-S	N.O. AC adjustable trip range current switch in split core enclosure	100-150A	1	0.30	\$79.00
Accessories					
DRA-2	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19 mm]		2	0.40	\$3.50

Maximum Amps				
Type	Setpoint (Trip Point) Ranges	Maximum Input Amps		
		Continuous	6 Sec.	1 Sec.
Fixed Core	1-10A	150	400	1000
	10-50A	150	400	1000
	50-100A	150	400	1000
	100-150A	150	400	1000
Split Core	2-20A	150	400	1000
	20-50A	150	400	1000
	50-100A	150	400	1000
	100-150A	150	400	1000

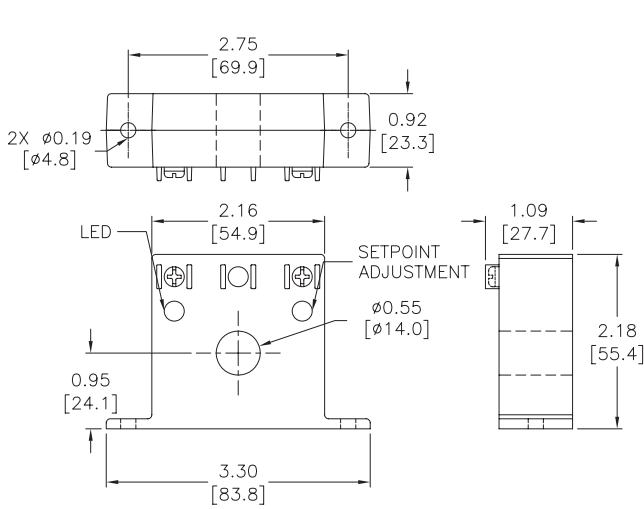
ACSL Series Specifications	
Power Required	None - self powered
Output Switch	Solid state, normally open
Switch Rating	0.15 A @ 240 VAC/VDC
Off State Leakage	<10µA
Response Time	100ms
Inrush Delay	2 second delay before output changes state upon first energization
Hysteresis	Minimum 3% of setpoint
Setpoint (Trip Point) Ranges	Ranges from 1-150A
Setpoint (Trip Point) Adjust	3/4-turn potentiometer
Isolation Voltage	UL Tested to 3,000VAC
Monitored Circuit	600VAC line-to-line max. 0-150A
Frequency Range	50-60 Hz
Aperture	0.55" (14mm) fixed core, 0.85" [21.6 mm] split core
Case	UL94V-0 Flammability Rating
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 (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)

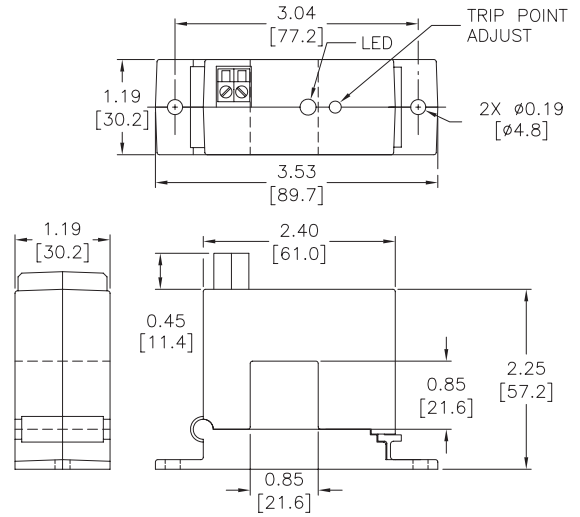
# ACUAMP<sup>®</sup> ACSL Series AC Current Switches

## Dimensions

Inches [mm]



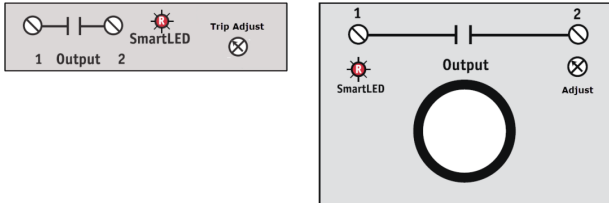
**ACSL Series Fixed Core**



**ACSL Series Split Core**

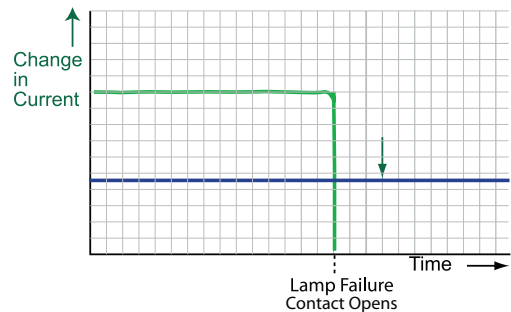
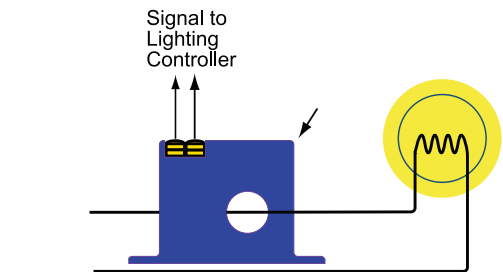
See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

## Connections



**Terminals are #6 screws  
Use 14-22 AWG solid or stranded wire**

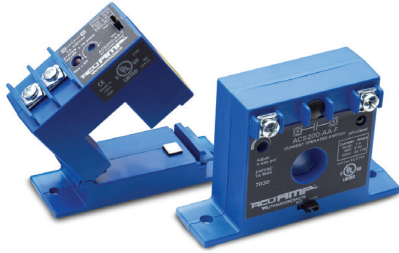
## Application Example







# ACS200 Series AC Current Switches



## Applications

### Electronic Proof of Flow

- Current operated switch eliminates the need for multiple pipe or duct penetrations, lowering installed costs.
- Solid-state technology more reliable than electromechanical pressure or flow switches

### Conveyors

- Detect jams and overloads; useful when interlocking multiple conveyor sections

### Lighting, Heating Circuits

- Detect ON/OFF status, easier to install and less expensive than photocell or temperature sensor alternatives

## Features

- Five-year warranty
- N.O. or N.C. outputs  
1A @ 240VAC or 0.15 A @ 30VDC.
- Status LED provides visual indication of setpoint trip and contact action.
- Self-powered operation cuts installation time and operating costs.
- Potentiometer-adjustable trip points speed start-up and allow for tailored operation.
- Choose fixed-core or split-core enclosure style. Split-core allows easy installation on existing systems; fixed-core offers more compact package for OEM or new installations.
- Built-in feet with optional 35mm DIN rail adapter available.

ACS200 series current operated switches provide the same dependable status indication as the ACS150 series, but with added resolution. A choice of three jumper-selectable input ranges allows the ACS200 to be tailored to an application and provides more precision in setpoint adjustment. Self-powered, isolated solid-state relay outputs and multiple input ranges are standard features.

## Agency Approvals



ACS200 AC Current Operated Switches				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
ACS200-AA-F	N.O. AC adjustable current switch, fixed core, AC output	1	0.40	\$68.50
ACS200-AA-S	N.O. AC adjustable current switch, split core, AC output	1	0.40	\$79.50
ACS200-CA-F	N.C. AC adjustable current switch, fixed core, AC output	1	0.40	\$68.50
ACS200-CA-S	N.C. AC adjustable current switch, split core, AC output	1	0.40	\$79.50
ACS200-AD-F	N.O. AC adjustable current switch, fixed core, DC output	1	0.40	\$68.50
ACS200-AD-S	N.O. AC adjustable current switch, split core, DC output	1	0.40	\$79.50
ACS200-CD-F	N.C. AC adjustable current switch, fixed core, DC output	1	0.40	\$68.50
ACS200-CD-S	N.C. AC adjustable current switch, split core, DC output	1	0.40	\$79.50
Accessories				
DRA-2	DIN rail adapters, 1.69"x0.39"x0.75" (43x10x19mm)	2	0.40	\$3.50

Maximum Input Ranges				
Range Jumper	Range - Fixed Core	Range Split Core	Maximum Input Amps 6 Sec max	Maximum Input Amps 1 Sec max
NONE	1 to 6A	1.75 to 6A	400	600
MID	6 to 40A	6 to 40A	500	800
HIGH	40 to 175A	40 to 200A	800	1200

ACS200 Minimum Load	
Part Number	Minimum Load Operating Current
ACS200-AA-F	20mA
ACS200-AA-S	20mA
ACS200-CA-F	20mA
ACS200-CA-S	20mA
ACS200-AD-F	1mA
ACS200-AD-S	1mA
ACS200-CD-F	1mA
ACS200-CD-S	1mA

ACS200 Series Specifications	
Power Supply	None - Self-powered
Output	Isolated solid-state switch
Output Rating	N.O. or N.C. AC: 1A @ 240VAC N.O. or N.C. DC: 0.15A @ 30VDC
Response Time	40 - 120ms
Off State Leakage	< 10µA
Input Ranges	Jumper selectable: Fixed core: 1 to 6A, 6 to 40A, 40 to 175A Split core: 1.75 to 6A, 6 to 40A, 40 to 200A
Setpoint (Trip Point) Adjust	4-turn potentiometer
Hysteresis	low: 0.15 A; mid: 0.3 A; high: 0.9 A
Overload (1 second duration)	low: 600A; mid: 800A; high: 1,200A
Isolation Voltage	UL listed to 1,270VAC. Tested to 5,000VAC (1 minute max)
Frequency Range	6 to 100Hz
Case	UL 94V-0 flammability rated
Environmental	Operating Temperature: -58 to 149°F [-50 to 65°C]
	Relative Humidity: 0-95% RH, Non-condensing
	Pollution Degree 2 Altitude to 2000 meters
Agency Approvals*	UL/cUL (E222847), CE

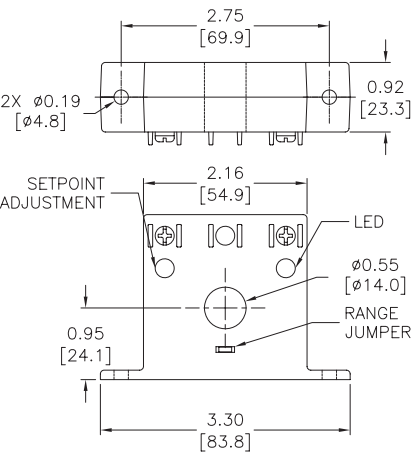
\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)



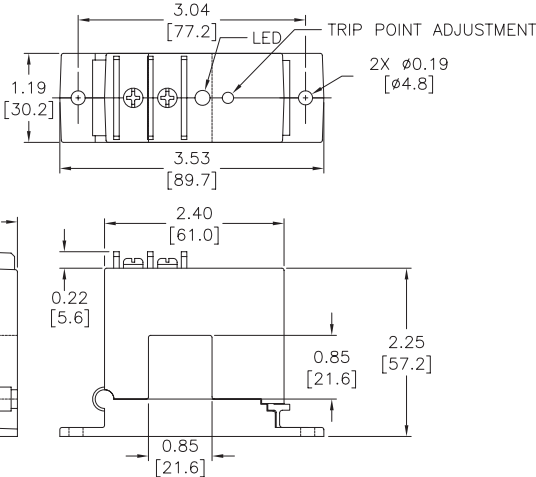
# ACS200 Series AC Current Switches

## Dimensions

Inches [mm]



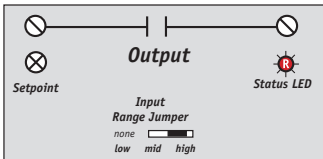
ACS200 Series Fixed Core



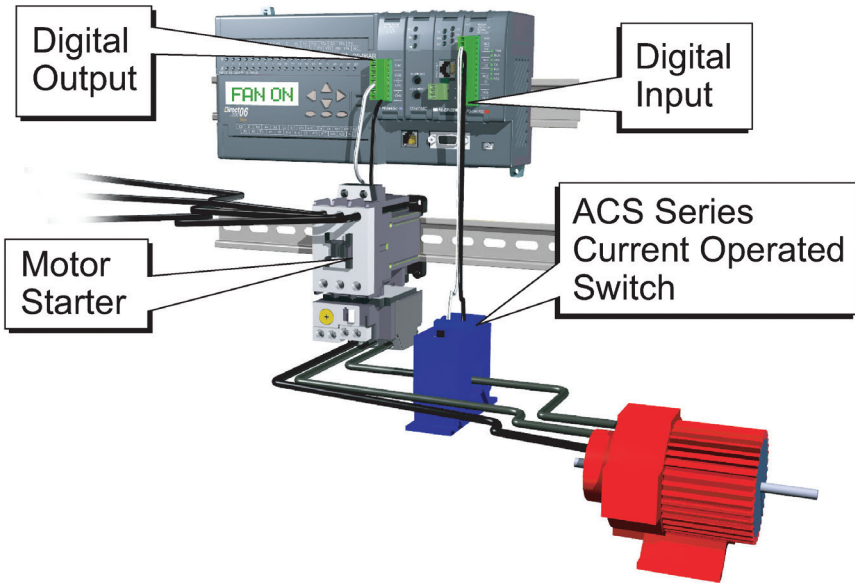
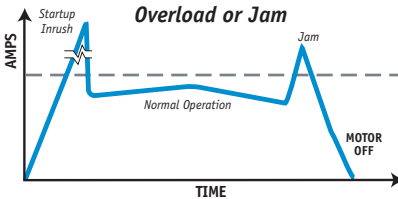
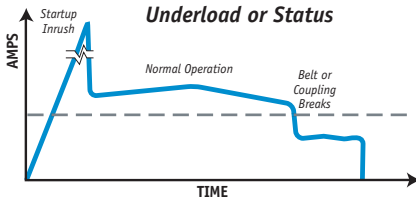
ACS200 Series Split Core

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

## Connections



Terminals are #6 screws  
Use up to 14 AWG copper wire





# ACSX Series AC Current Switches



## Applications

### Motor Protection

- Serves as an electronic proof-of-operation; detects current draw changes in motors when they encounter problems such as pumps running dry or impending bearing failure
- Non-intrusive; less expensive to install than differential pressure flow sensors or thermal switches
- Much quicker response time than Class 10 overload relays

### High Inrush or Temporary Overload Current

- Adjustable start-up/delay timer allows 0-15 second delay to eliminate nuisance trips from high inrush or short overload conditions

## Features

Standard features include self-powering, jumper-selectable ranges and a choice of outputs and core styles.

- Five-year warranty
- Potentiometer adjustable start-up/delay timer is field-adjustable from 0.2 to 15 seconds to eliminate nuisance alarms caused by start-up inrush or temporary overcurrent conditions.
- Choice of N.O. or N.C. AC or AC/DC outputs for use with most standard motor control systems.
- Improved ease of installation and use:
  - Adjustable time delay feature eliminates need for separate time delay relay
  - Self-powered, split-core models simplify installation
  - Status LED provides visual indication of setpoint trip and contact action
- Industrial grade performance - constant hysteresis and linear setpoint response for greater accuracy
- Built-in feet with optional 35mm DIN rail adapter available.

## Agency Approvals



The ACSX series high-performance current-operated switch has a field-adjustable time delay feature that minimizes nuisance trips during start-up and operation. These switches are designed for motor status applications where setpoint accuracy and repeatability are critical and offer a linear setpoint characteristic and constant hysteresis.

ACSX AC Current Operated Switches				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
ACSX200-AA-S	N.O. AC adjustable current switch, split core, AC switch output	1	0.40	\$92.75
ACSX200-CA-S	N.C. AC adjustable current switch, split core, AC switch output	1	0.40	\$92.75
ACSX200-AE-F	N.O. AC adjustable current switch, fixed core, AC/DC switch output	1	0.30	\$79.50
ACSX200-AE-S	N.O. AC adjustable current switch, split core AC/DC switch output	1	0.40	\$89.75
ACSX200-CE-F	N.C. AC adjustable current switch, fixed core AC/DC switch output	1	0.30	\$79.50
ACSX200-CE-S	N.C. AC adjustable current switch, split core AC/DC switch output	1	0.40	\$89.75
Accessories				
DRA-2	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19 mm]	2	0.40	\$3.50

ACSX Series Specifications	
Power Supply	None - Self-powered
Output	Isolated solid-state switch
Output Rating	N.O. or N.C. AC: 1A @ 240VAC; N.O. AC/DC: 0.15 A @ 240 VAC/VDC N.C. AC/DC: 0.20 A @ 135 VAC/VDC
Response Time	Adjustable 0.2 to 15 seconds
Off State Leakage	< 10µA
Input Ranges	Jumper selectable: Fixed core: 1.5 to 12A, 12 to 55A, 55 to 175A Split core: 2 to 12A, 12 to 55A, 55 to 200A
Setpoint (Trip Point) Adjust	Fixed core: 15-turn potentiometer Split core: 4-turn potentiometer
Hysteresis	5% constant
Isolation Voltage	UL listed to 1,270VAC. Tested to 5,000VAC (1 minute max)
Frequency Range	50 to 100 Hz
Case	UL 94V-0 flammability rated
Environmental	Operating Temperature: -5 to 122°F [-15 to 50°C]
	Relative Humidity: 0-95% RH, Non-condensing
	Pollution Degree 2
Agency Approvals*	UL/cUL (E222847), CE

Maximum Input Ranges				
Type	Input Range	Maximum Input Amps		
		Continuous	6 Sec max	1 Sec max
Fixed Core	1.5-175 A	200	400	1000
Split Core	2-200 A	200	400	1000

ACSX200 Minimum Load	
Part Number	Minimum Load Operating Current
ACSX200-AE-F	**
ACSX200-AE-S	**
ACSX200-CE-F	150
ACSX200-CE-S	150
ACSX200-AA-S	20mA
ACSX200-CA-S	20mA

\*\* The AC/DC switch output has no specified minimum load required to operate the output. There is a maximum resistance of 5 ohms across the output when the switch is "on."

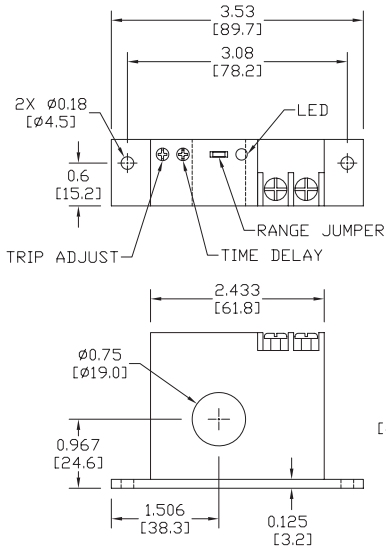
\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)



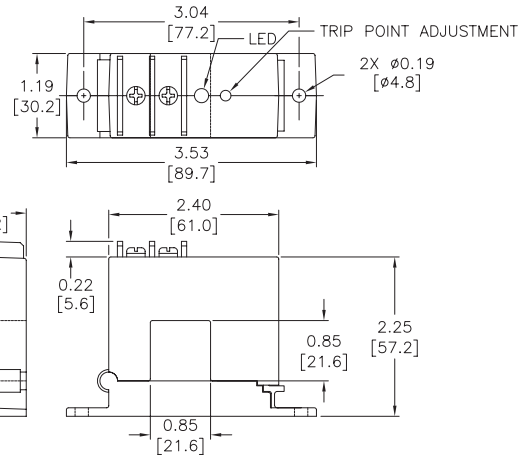
# ACSX Series AC Current Switches

## Dimensions

Inches [mm]



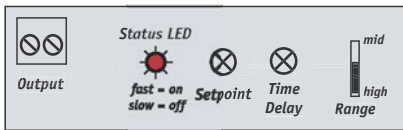
**ACSX Series Fixed Core**



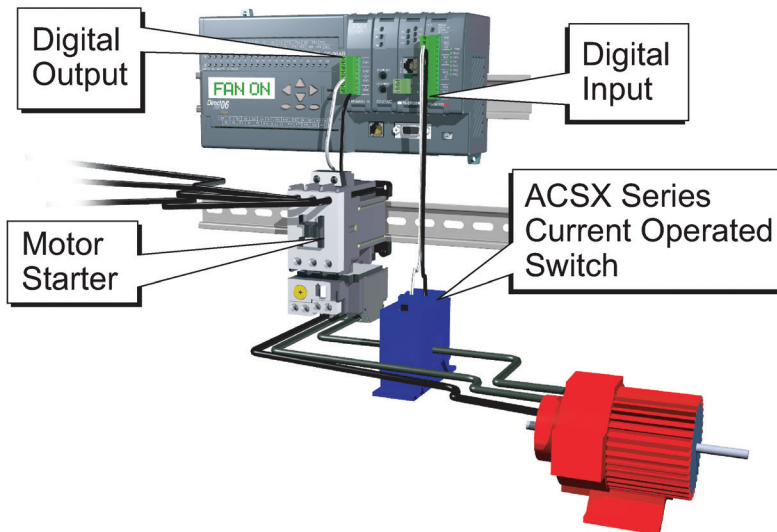
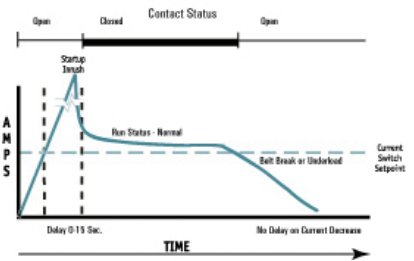
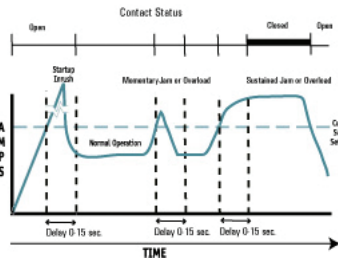
**ACSX Series Split Core**

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

## Connections



Use up to 14 AWG copper wire





# ACUAMP<sup>®</sup> ACL1 AC Current Indicator



## Applications

### Monitoring Loads

- Provides indication of current draw on monitored loads in a panel

### Operation Confirmation

- Provides confirmation of operation for critical lighting equipment

### Identifying Open Circuits

- Quickly identify open heater circuit connection

- Five-year warranty

- **Low Sensitivity Turn-On Point:** Detect currents as low as 0.5A with a single conductor pass. Eliminates the need to wrap conductors multiple times to increase sensitivity.

- **High Visibility Flashing LED:** Flashing LEDs perform better in daylight conditions and from multiple angles than constant on LEDs.

## Agency Approvals



The ACL1 Current Indicator is a small, inexpensive, simple LED ring which slides over a conductor to give a flashing indication of current flow. This unit is ideal for use in control panels, or wherever you need to substantiate current flow. The ACL1 current indicator is a cost-effective way to detect live conductors and see current flow to fans, heaters, pumps, lighting or other powered devices.

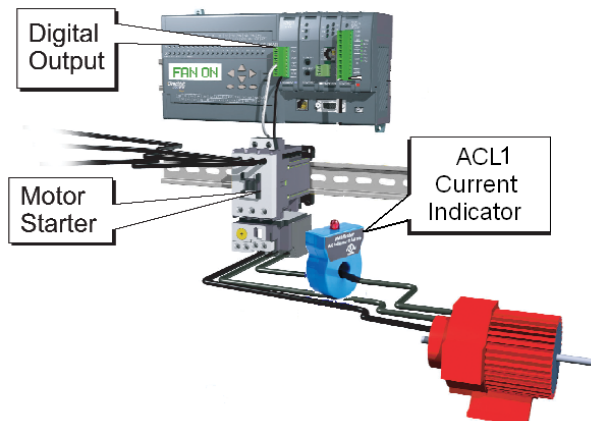
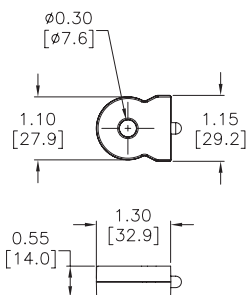
## Features

ACL1 AC Current Indicator				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
ACL1	AC current indicator, 0.5–100A, red flashing LED	1	0.3	\$12.00
Specifications				
<b>Sensed Current</b>	AC, 50–400 Hz			
<b>Output/Indication</b>	LED (flashing, red)			
<b>Indicating Range</b>	0.5–100A			
<b>LED ON</b>	>500mA (factory set)			
<b>Case</b>	UL94-V0 Flammability Rated			
<b>Mounting</b>	Slides directly onto monitored conductor (can be attached with the supplied wire-tie)			
<b>Isolation Voltage</b>	3KV (monitored line to output)			
<b>Environmental</b>	Operating Temperature: -58 to 122°F [-50 to 50°C]			
	Relative Humidity: 0-95% RH, Non-condensing			
	Pollution Degree 2			
<b>Sensing Aperture</b>	0.30" [7.6 mm] dia.			
<b>Agency Approvals*</b>	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 [www.AutomationDirect.com](http://www.AutomationDirect.com)

## Dimensions

Inches [mm]





# 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.

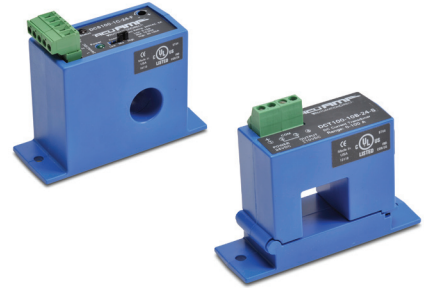
DCT and DCS100 series have multiple input ranges (set by movable jumpers) for maximum flexibility across many current ratings. DCT series include output choices of 4 to 20 mA or +/-10 VDC bidirectional models.

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 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 Current Switches and Transducers Applications

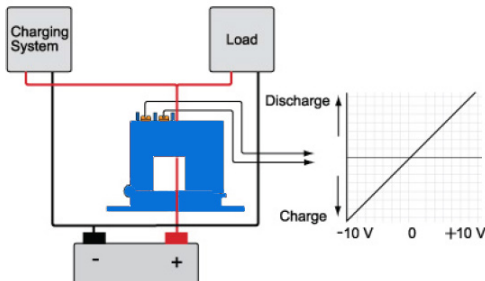
## Application Guide

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.

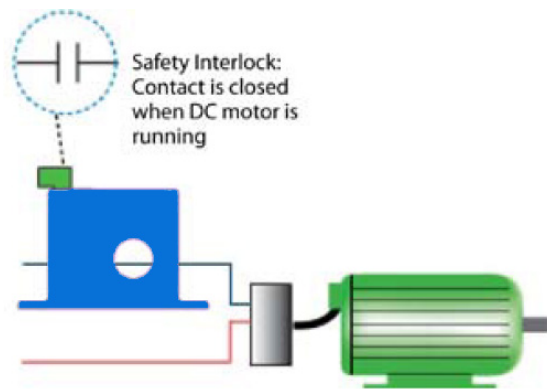
The bi-directional models allow the monitoring of batteries while they are being charged or consumed and can be used to trigger a warning if critical low levels are reached. They can also monitor the output of a photovoltaic array to make sure there is enough energy being generated to keep the process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

### Transducer

#### Battery Charging System - Bidirectional Output

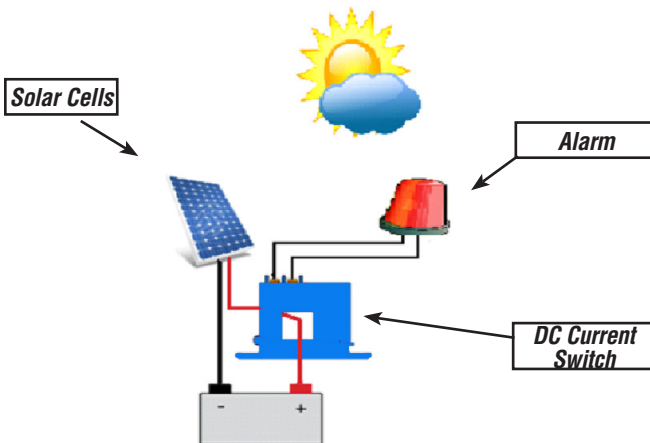


### Failure Detection



### 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.

# 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 VAC/DC	1	0.45	\$177.00
<b>DCT200-10B-24-S</b>	DC current transducer, split-core, Bidirectional 200A, +/-10VDC, 24 VAC/DC	1	0.45	\$177.00
<b>DCT300-10B-24-S</b>	DC current transducer, split-core, Bidirectional 300A, +/-10VDC, 24 VAC/DC	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

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Limit Switches

Sensors: Encoders

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

Appendix Book 2

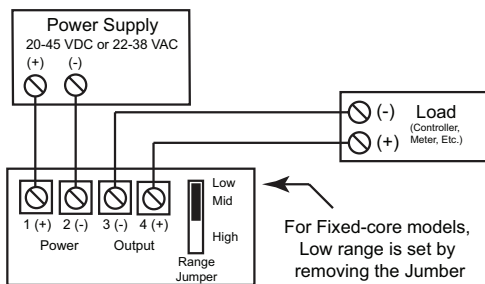
Terms and Conditions

DCT Series Specifications		
Models Available	10B	42
Power Supply	20-45 VDC, 22-38 VAC	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	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	Jumper selectable from 0 to 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)	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	

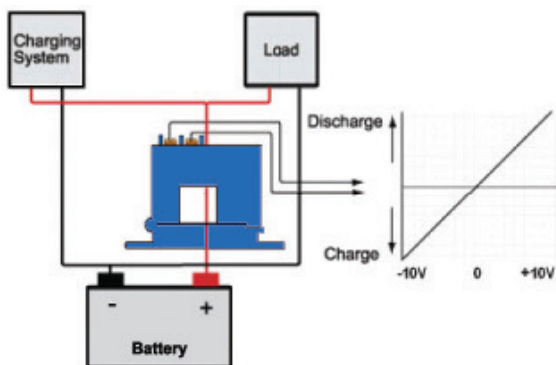
\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)

## Connections

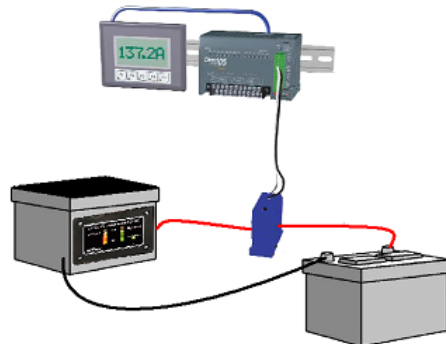
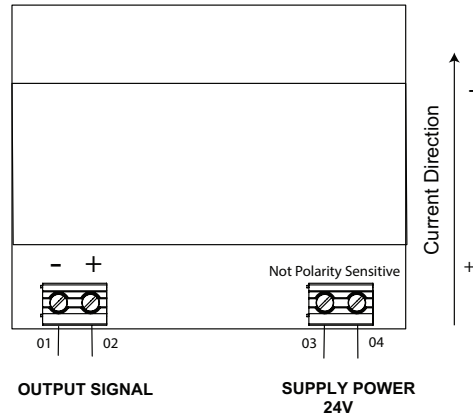
### Connection for units up to 400A



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

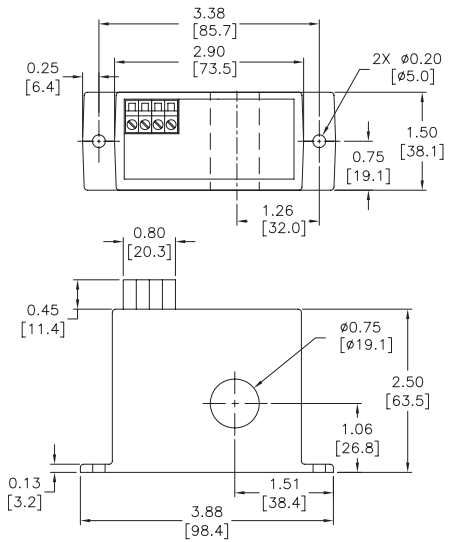




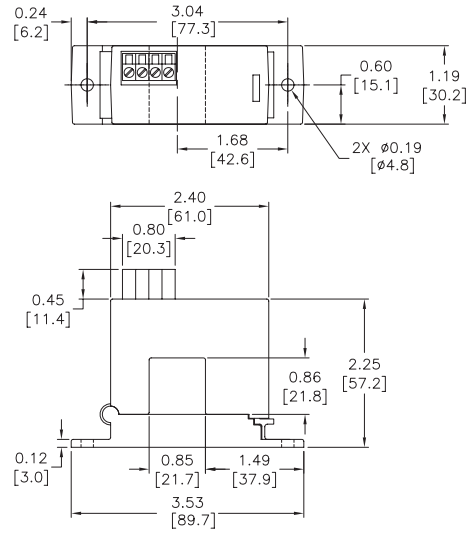
# ACUAMP® DCT Series DC Current Transducers

## Dimensions

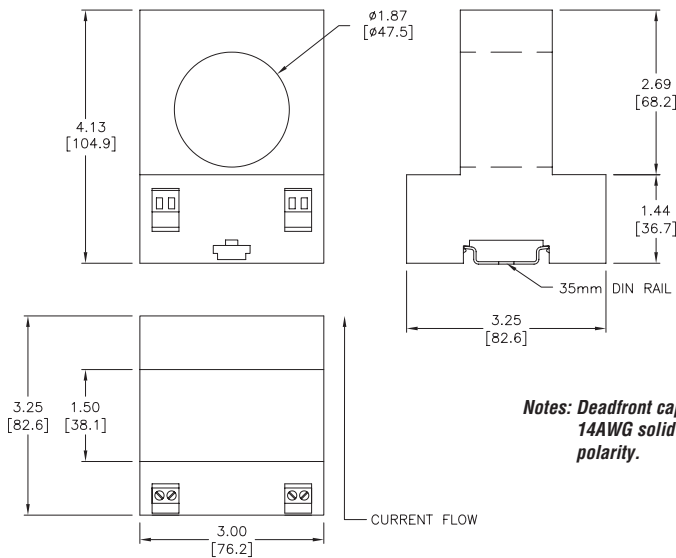
Inches [mm]



**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](http://www.AutomationDirect.com) for complete Engineering drawings.**

# 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	\$90.00
DCS100-1C-24-F	DC current switch, fixed-core, 5-15, 10-50, 20-100A, SPDT RELAY, 24 VAC/DC	1	0.35	\$93.00
Accessories				
DRA-2	DIN rail adapter, 1.69"x0.39"x0.75" [43x10x19 mm]. Package of 2.	2	0.40	\$3.50

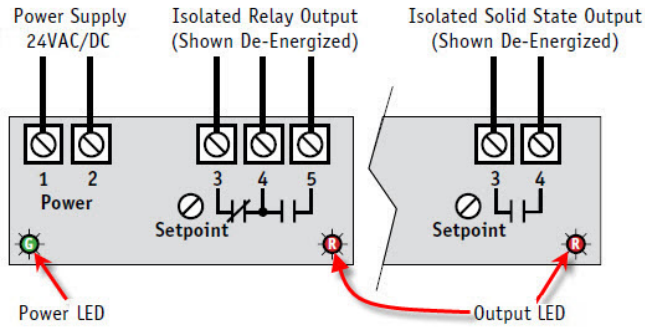
Ranges and Maximum Amps			
JUMPER POSITION	RANGE	MAXIMUM INPUT AMPS	
		CONTINUOUS	5 Seconds
LOW	5-15A	200A	300A
MID	10-50A	200A	300A
HIGH	20-100A	200A	300A

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)

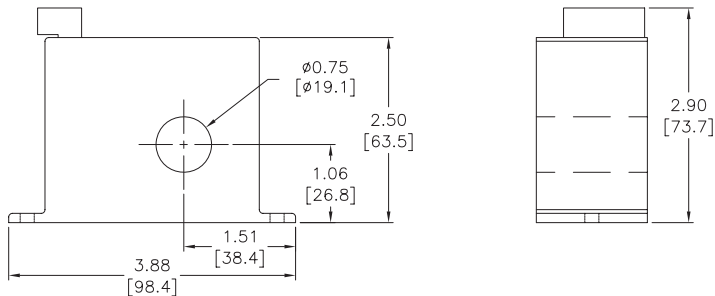
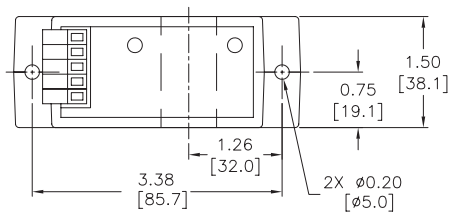
# ACUAMP® DCS100 Series DC Current Switches

## Connections



## Dimensions

Inches [mm]



**DCS Series**

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



# VACT Series AC Voltage Transducers



The VACT series AC voltage transducers are high-performance true RMS transducers for sensing voltage in single-phase installations. Applicable on circuits of 120V, 208V, 240V, 277V, and 480V, the VACT series models provide a fully isolated, 4-20 mA output proportional to rated voltage in both sinusoidal and non-sinusoidal (variable frequency) situations. Housed in a slim, compact, easy-to-install DIN rail mounted enclosure, the VACT series comes in a variety of voltage ranges and use four wire terminal block connections.

## Applications

### True RMS Voltage Monitoring

- Detect below normal or “brown out” voltage conditions; protect against possible motor overheating.
- Identify phase loss conditions by detecting voltage reduction in one or more phase of three-phase motor.
- Monitor over voltage conditions associated with regenerative voltage to help in diagnosing/avoiding motor drive issues.
- Detect voltage conditions which may cause stress in or damage to soft starter components (SCRs).

## Features

- **True RMS Output:** Allows for use in situations where power supplied is non-sinusoidal such as VFD applications, poor power quality installations or other electrically harsh/challenging environments.
- **Standard 4-20 mA Loop Powered Output:** Industry standard output makes use with existing controllers, data loggers and SCADA equipment easy and reliable.
- **Input/Output Isolation:** Input and output circuitry electrically isolated for improved safety of use.
- **Compact DIN rail Mount Enclosure:** Space saving 35mm wide enclosure makes installation quick and easy.

## Agency Approvals



VACT Series AC Voltage Transducers				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
VACT150-42L	Single-phase AC voltage transducer, 0-150 VAC input range, 4-20 mA output (sinking)	1	0.25	\$135.00
VACT500-42L	Single-phase AC voltage transducer, 0-500 VAC input range, 4-20 mA output (sinking)	1	0.25	\$135.00

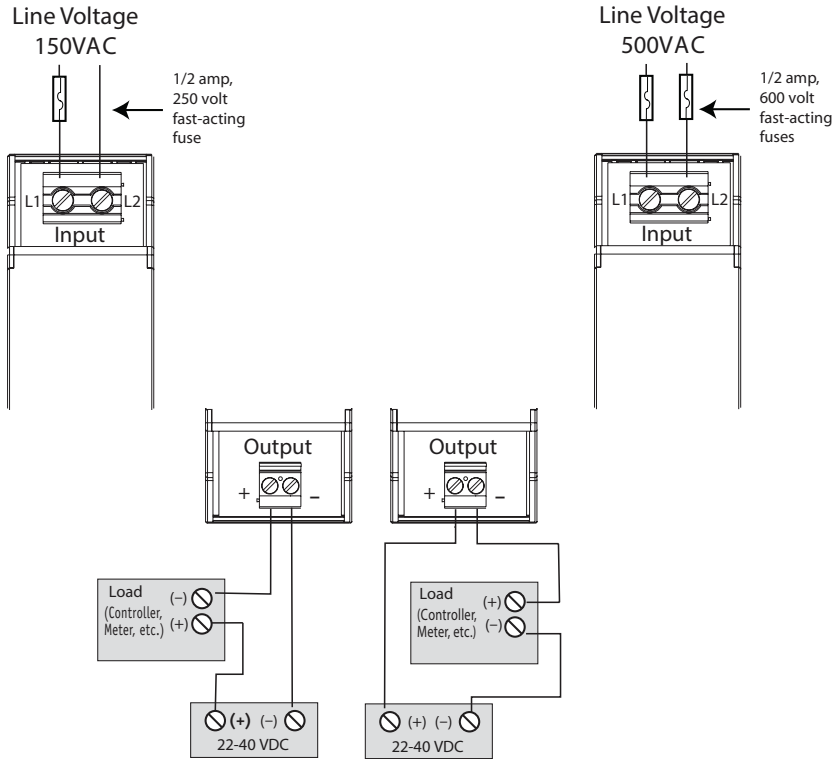
VACT Series Specifications	
<b>Power Supply</b>	24VDC (22VDC-40VDC), Use Class 2 power supply only
<b>Voltage Measurement</b>	150V (for monitoring 120VAC) and 500V (for monitoring 208, 240, 277, 480 VAC), not to exceed 600VDC
<b>Output</b>	4-20 mA proportional; loop powered (sinking), capped at 24mA max
<b>Response Time</b>	250ms (to 90% value)
<b>Accuracy</b>	<1%
<b>Linearity</b>	<0.5%
<b>Output Loading</b>	500Ω maximum
<b>Isolation Voltage</b>	2500 Volts per UL
<b>Frequency Range</b>	40-100 Hz
<b>Case</b>	UL94V-0 Flammability Rating
<b>Environmental</b>	Operating temperature: -4 to 122°F (-20 to 50°C)
	Relative humidity: 0-95% RH, Non-condensing
	Pollution Degree 2
	Altitude to 2000 meters
<b>Agency Approvals*</b>	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)



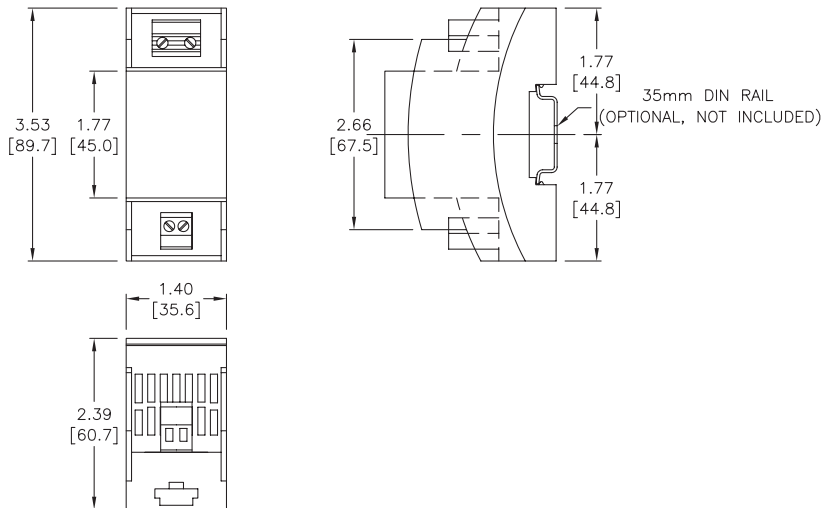
# VACT Series AC Voltage Transducers

## Connection



## Dimensions

Inches [mm]



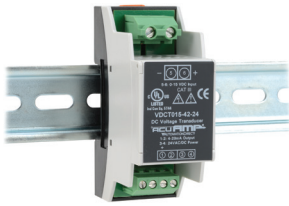
### VACT Series

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





# VDCT Series DC Voltage Transducers



The VDCT series DC voltage transducers are high-performance transducers for sensing voltage in DC powered installations. Applicable on circuits up to 50VDC, the VDCT series models provide a fully isolated, 4-20 mA output proportional to rated nominal voltage in DC circuits. Housed in a slim, compact, easy-to-install DIN rail mounted enclosure, the VDCT series comes in two different nominal voltage ranges.

## Applications

- Detect below normal or “brown out” voltage conditions; protect against possible motor overheating.
- Monitor over voltage conditions associated with regenerative voltage to help in diagnosing/avoiding motor drive issues.
- Detect voltage conditions which may cause stress in or damage to soft starter components (SCRs).

## Features

- **Accurate Output:** Two ranges available for your application, up to 50VDC
- **Standard 4-20 mA Output:** Industry standard output makes use with existing controllers, data loggers and SCADA equipment easy and reliable.
- **Input/Output Isolation:** Input and output circuitry electrically isolated for improved safety of use.
- **Compact DIN rail Mount Enclosure:** Space saving 35mm wide enclosure makes installation quick and easy.

## Agency Approvals



VDCT Series DC Voltage Transducers				
Part Number	Description	Pcs/Pkg	Wt (lb)	Price
VDCT015-42-24	Single-phase DC voltage transducer, 0-15 VDC input range, 4-20 mA output (sinking)	1	0.25	\$135.00
VDCT050-42-24	Single-phase DC voltage transducer, 0-50 VDC input range, 4-20 mA output (sinking)	1	0.25	\$135.00

VDCT Series Specifications	
<b>Power Supply</b>	24 VAC/DC External Power (20-45 VDC), <2VA Use Class 2 power supply
<b>Input</b>	15V (for monitoring 12VDC) and 50V (for monitoring 24, 36, 48 VDC), not to exceed 600VDC
<b>Output</b>	4-20mA proportional; capped at 24mA max
<b>Response Time</b>	250ms (to 90% value)
<b>Accuracy</b>	<1%
<b>Linearity</b>	<0.5%
<b>Output Loading</b>	500Ω maximum
<b>Isolation Voltage</b>	2500 Volts per UL
<b>Frequency Range</b>	DC
<b>Operating Temperature</b>	-4 to 122°F (-20 to 50°C) (surrounding sensor)
<b>Case</b>	UL94V-0 Flammability Rating
<b>Environmental</b>	Operating temperature: -4 to 122°F (-20 to 50°C)
	Relative humidity: 0-95% RH, Non-condensing
	Pollution Degree 2
	Altitude to 2000 meters
<b>Agency Approvals</b>	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)

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Limit Switches

Sensors: Encoders

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

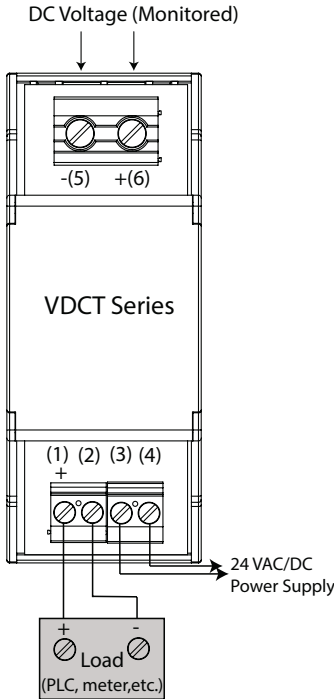
Appendix Book 2

Terms and Conditions



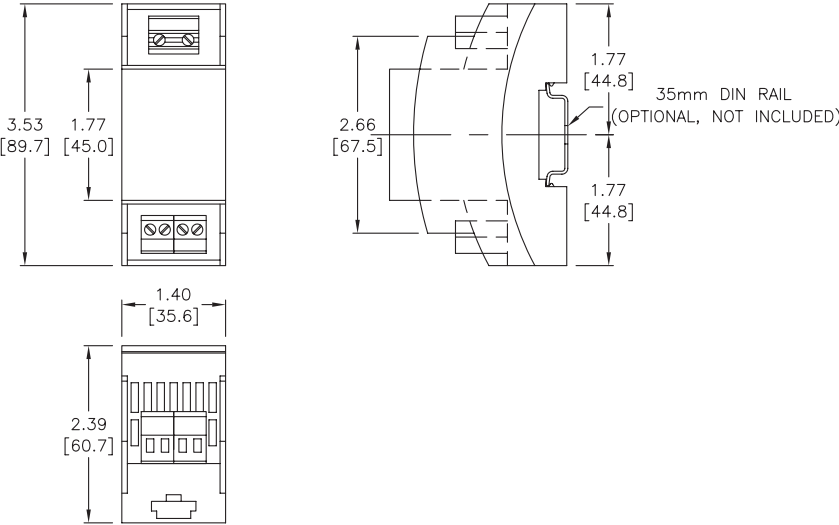
# VDCT Series DC Voltage Transducers

## Connection



## Dimensions

Inches [mm]



### VDCT Series

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

# ACUAMP® GFS Series AC Ground Fault Sensors



## Applications

### Personnel Protection (typically 5mA)

- Detects sensitive ground fault conditions, which may be injurious to personnel and processes
- Functions as sensor and alarm trigger when part of an overall ground fault protection system

### Equipment Protection (typically 10mA or 30mA)

For applications where personal protection is not the primary concern, higher setpoint capability helps eliminate nuisance tripping while still providing adequate ground fault detection to protect machine electronics.

### Regulatory

Meets requirements as stipulated by governmental and industrial regulatory groups for ground fault sensing.

## Features

- **Five-year warranty**
- **Wide Range of Options:** Mechanical relay outputs with Auto or Manual reset.
- **Setpoint Options:** Field selectable 5mA, 10mA or 30mA setpoints makes user adjustments fast, sure and convenient.
- **Compatible with Standard Equipment:** Applicable on single- and three-phase systems. Ideal for use with shunt trip breakers. Magnetically isolated from monitored circuit and control power.
- **Built-in feet with optional 35mm DIN rail adapter available.** Large aperture version has integral 35mm DIN rail mounting.
- **Not compatible with VFD or SCR Outputs**

## Agency Approvals



Ground fault sensors help protect people, products, and processes from damage that can be caused by ground fault conditions. The GFS series monitors all current-carrying conductors in grounded single and three-phase delta or wye systems.

GFS series sensors offer jumper-selectable setpoints of 5, 10 or 30 mA. This series is available in fixed-core models only.

GFS & GFSL Series Ground Fault Sensors					
Part Number	Description	Pcs/Pkg	Wt (lb)	Price	
<b>GFS30-M1A-24-F</b>	Ground fault sensor, SPST-N.O., manual reset, 5/10/30 mA trip, 24 VAC/DC	1	0.50	\$200.00	
<b>GFS30-M1B-24-F</b>	Ground fault sensor, SPST-N.C., manual reset, 5/10/30 mA trip, 24 VAC/DC	1	0.50	\$200.00	
<b>GFS30-D1C-24-F</b>	Ground fault sensor, SPDT de-energized auto reset, 5/10/30 mA trip, 24 VAC/DC	1	0.50	\$136.00	
<b>GFS30-E1C-24-F</b>	Ground fault sensor, SPDT energized auto reset, 5/10/30 mA trip, 24 VAC/DC	1	0.50	\$145.00	
<b>GFS30-M1A-120A-F</b>	Ground fault sensor, SPST-N.O., manual reset, 5/10/30 mA trip, 120VAC	1	0.50	\$200.00	
<b>GFS30-M1B-120A-F</b>	Ground fault sensor, SPST-N.C., manual reset, 5/10/30 mA trip, 120VAC	1	0.50	\$200.00	
<b>GFS30-D1C-120A-F</b>	Ground fault sensor, SPDT de-energized auto reset, 5/10/30 mA trip, 120VAC	1	0.50	\$136.00	
<b>GFS30-E1C-120A-F</b>	Ground fault sensor, SPDT energized auto reset, 5/10/30 mA trip, 120VAC	1	0.50	\$145.00	
<b>GFSL30-M1A-120A-F</b>	Ground fault sensor, large aperture, SPST-N.O., manual reset, 5/10/30 mA trip, 120VAC	1	0.50	\$230.00	
<b>GFSL30-M1B-120A-F</b>	Ground fault sensor, large aperture, SPST-N.C., manual reset, 5/10/30 mA trip, 120VAC	1	0.50	\$230.00	
Accessories					
<b>DRA-2</b>	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19 mm]	2	0.40	\$3.50	

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Limit Switches

Sensors: Encoders

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

Appendix Book 2

Terms and Conditions

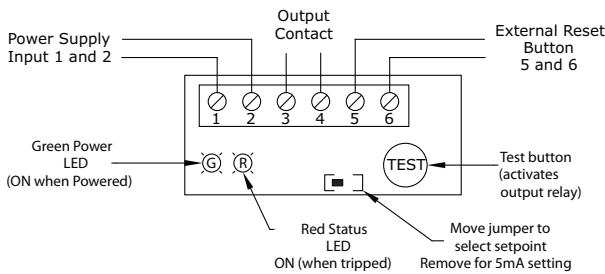
# ACUAMP® GFS Series AC Ground Fault Sensors

GFS & GFSL Series Specifications		
Models Available	GFS	GFSL
<b>Power Supply</b>	Model 24-F: 24 VAC/DC (20.4-27.6 VAC or 19.2-30 VDC) Model 120A-F: 120VAC (66-132 VAC), 50/60 Hz	120 VAC (66-132 VAC), 50/60 Hz
<b>Monitored Circuit</b>	1500 VAC max, 50-400 Hz	600VAC line-to-line max., 50/60 Hz
<b>Output Signal</b>	SPST or SPDT	SPST (normally open or normally closed)
<b>Output Rating</b>	Manual: SPST Relay, 1A @ 125VAC, 2A @ 30VDC, Auto: SPDT Relay, 1A @ 125VAC, 2A @ 30VDC	Manual Reset: SPST Relay, 1A @ 125VAC, 2A @ 30VDC
<b>Off State Leakage</b>	None	None
<b>Power Consumption</b>	2.5 VA max	2.5 VA max
<b>Setpoint (Trip Point)</b>	5, 10 and 30 mA jumper select	5, 10 and 30 mA jumper select
<b>Response Time</b>	200ms @ 50% above setpoint	200ms @ 5% over setpoint 60ms @ 50% over setpoint 15ms @ 500% over setpoint
<b>Sensing Aperture</b>	0.75" [19.1 mm] diameter	1.82" [46mm] diameter
<b>Isolation Voltage</b>	5kV (tested)	UL tested to 1,048VAC
<b>Case</b>	UL 94V-0 Flammability Rated	UL 94V-0 Flammability Rated
<b>Environmental</b>	Operating temperature: -4 to 122°F (-20 to 50°C)	
	Relative humidity: 0-95% RH, Non-condensing	
	Pollution Degree 2	
	Altitude to 2000 meters	
<b>Agency Approvals*</b>	UL/cUL 1053 (E343037), CE	UL/cUL 508 (E222847), CE

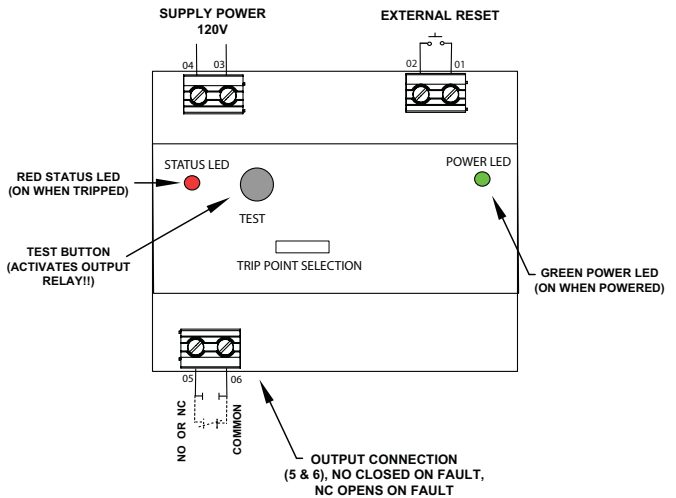
\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at [www.AutomationDirect.com](http://www.AutomationDirect.com)

## Connections

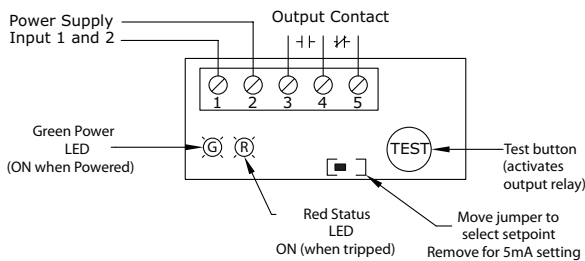
### GFS M1A and M1B Models



### GFSL M1A and M1B Models



### GFS D1C and E1C Models



# ACUAMP® GFS Series AC Ground Fault Sensors

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Limit Switches

Sensors: Encoders

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

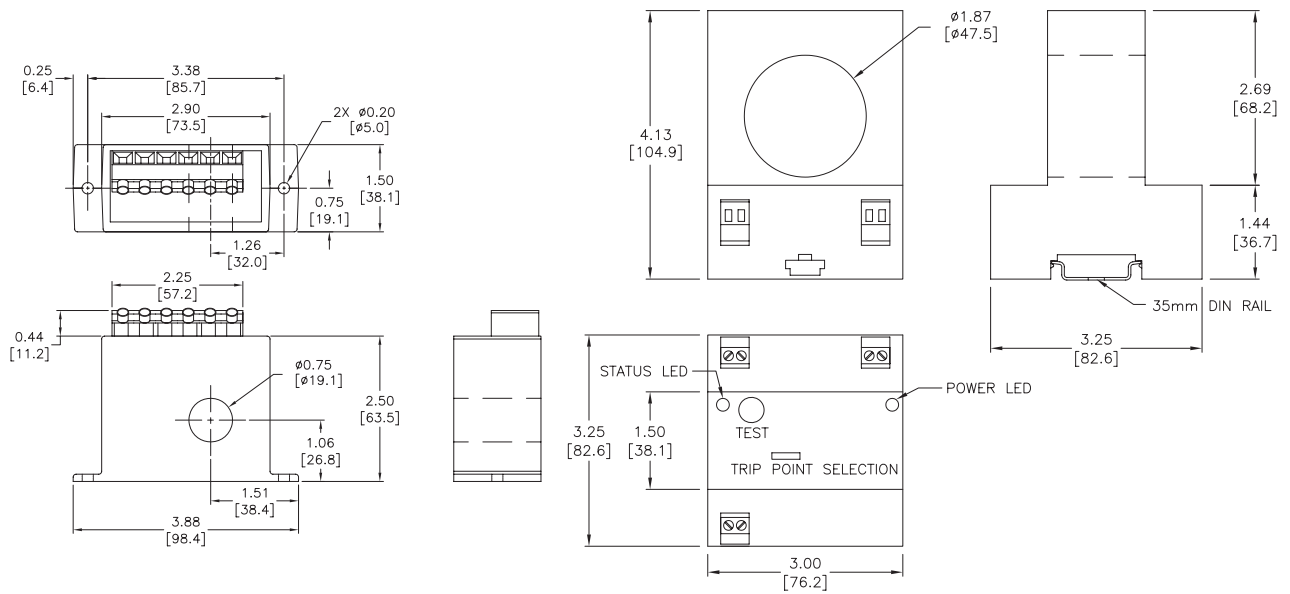
Pneumatics: Air Fittings

Appendix Book 2

Terms and Conditions

## Dimensions

Inches [mm]



**GFS M1A and M1B Models**

**GFSL M1A and M1B Models**

**GFS D1C and E1C Models**

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





# Ground Fault Sensors Operation and Applications

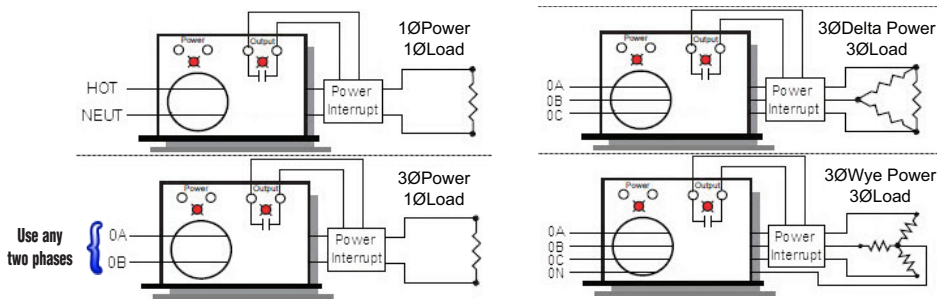
## Principle of Operation

### “Zero Sum” Operating Principle:

In three-phase delta and wye systems, under normal conditions current in the ‘hot’ leg of a two-wire load is equal in magnitude but opposite in sign to the

current in the neutral leg. As a result, the electromagnetic fields surrounding these two conductors cancel each other, producing a “zero sum current.” As soon as current leaks to ground

(fault condition), the two currents become imbalanced and a net magnetic field results. GFS Series sensors monitor this field and trip alarm contacts when the leakage rises above setpoint.



## Operation/Setup

### Auto Reset Sensors (E1C and D1C)

GFS Auto Reset sensors monitor all current carrying conductors and will trip when a ground fault is sensed. The output of these sensors will automatically reset when the ground fault condition is cleared. Select from three factory calibrated setpoints by moving the setpoint jumper to the desired position.

- 5mA setpoint: Detect sensitive ground fault conditions that may be injurious to personnel or processes.
- 10 mA and 30 mA setpoints: These higher setpoints help eliminate nuisance tripping while still providing adequate ground fault protection for machine electronics.

### Normally Energized Models (E1C)

- Used to detect both ground faults and loss of control power

	NO POWER		CONTROL POWER APPLIED			
	Output	LED	No Fault		Fault Detected	
N.C.	Closed	OFF	Open	OFF	Closed	ON
N.O.	Open	OFF	Closed	OFF	Open	ON

### Normally De-energized Models (D1C)

- Used to detect ground faults

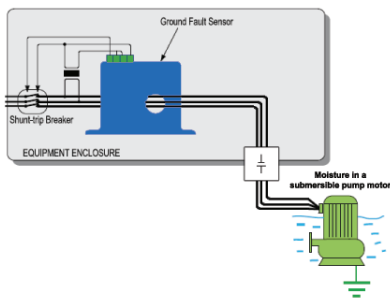
	NO POWER		CONTROL POWER APPLIED			
	Output	LED	No Fault		Fault Detected	
N.C.	Closed	OFF	Closed	OFF	Open	ON
N.O.	Open	OFF	Open	OFF	Closed	ON

### Manual Reset Sensors (M1A and M1B)

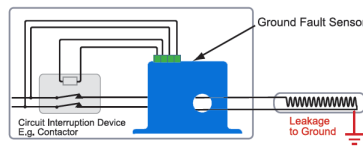
GFS Manual Reset Sensors monitor all current carrying conductors and will trip when a ground fault is sensed. When the output of these sensors trips it will latch in the tripped position even after the ground fault is cleared. If control power is removed, the sensor remains in its last output state. To reset the sensor, the ground fault condition must be removed and a momentary dry contact closed at the external reset terminals

- Models with M1A suffix: The contact is normally open with no ground fault condition, and closed when a ground fault is sensed.
- Models with M1B suffix: The contact is normally closed with no ground fault condition, and open when a ground fault is sensed.

### Pump Seal Failure



### Insulation Breakdown Monitoring



### Snow Melting or Soil Warming System

