

## Specifications

Power Required	120 VAC or 24VDC
Output Type	SPDT Relay
Contact Rating	1A @ 125VAC, 2A @ 30VDC
Response Time	Adjustable 0.5 to 12 seconds
Hysteresis	Constant 5% of setpoint
Set Point Ranges	10-1200 Amps
Setpoint Adjust	Two Digital Rotary Switches plus one +1,000 amp slide switch (Patent Pending)
Analog Signal	4-20mA (0-1200 AAC)
Accuracy	+/-2%, True RMS
Isolation Voltage	UL Listed to 1,270 VAC Tested to 5,000 VAC
Frequency Range	10-400Hz
Sensing Aperture	1.825 inches (46mm)
Operating	-4 to 122 DegF (-20 to 50 DegC)
Environmental	0-95% RH, Non Condensing
Listings	UL and ULC Listed (pending) CE Certified (pending)

## Trip Point Adjustment

The ATS current relay utilizes a revolutionary method to set the point where the primary current actuates the relay output. One ten position rotary selector sets the trip point in increments of ten amps, between zero and 90. A second rotary selector adjusts in increments of 100 amps, between zero and 900 amps. A two position slide switch allows for either zero or 1000 amps. The maximum trip point is 1200 amps, and any setting above this maximum will cause the unit setting to remain at 1200.

The output can be delayed up to 12 seconds to allow for short periods of over current conditions to keep the relay from changing state.

## Model Number Key

**ATS - 420 - SDT - 24D - DL**

### CASE STYLE:

DL - Large DIN Rail Mounting

### POWER SUPPLY:

24D - 24 VDC

120 - 120 VAC

### OUTPUT:

SDT - SPDT Relay, 1A @ 125VAC, 2A @ 30VDC

### SENSOR TYPE:

ATS - AC current operated switch with adjustable time delay, rotary set point adjustment and analog signal

## Know Your Power



### Other NK Technologies Products Include:

AC & DC Current Transducers  
AC & DC Current Operated Switches  
1 $\phi$  & 3 $\phi$  Power Transducers  
Current & Potential Transformers (CTs&PTs)



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# INSTRUCTIONS



## ATS SERIES

**AC Current Operated Relay**  
**Adjustable Range with SPDT Output, Adjustable Delay and Analog Signal**

### Quick "How To" Guide

1. Mount the sensor to the DIN rail.
2. Run the wire to be monitored through aperture.
3. Connect output wiring.
  - A. Use up to 14 AWG copper wires.
  - B. Ensure the power supply voltage matches the model you are installing. Energize the power.
4. Adjust Setpoint.
  - A. Flip the 0-1K switch to set the fourth digit value.
  - B. Turn the 1C value selector to your third digit target value
  - C. Turn the 10's value selector to your second digit value.

## Description

ATS Series are externally powered, current-operated relays with 0-1200 A analog signal. The relay triggers when sensed current levels exceed the adjusted setpoint. The relay action is fail safe, so the relay will change state immediately with power applied. Contact action on current increase can be delayed for up to 12 seconds by using the Time Delay Adjust selector.

## Installation

ATS sensors can be located in the same environment as motors, contactors, heaters, pull-boxes, and other electrical enclosures. Mounting can be done in any position by snapping the housing onto a standard DIN rail or hung directly on wires with a wire tie. Ensure at least one inch clearance exists between sensor and other magnetic devices.

Run wire to be monitored through aperture (opening) in the sensor. The direction that the wire passes through the opening is not important.

Connect the output relay contact to the load to be switched, being sure that the load does not exceed the capacity of the output contact. The relay is designed to operate in a fail safe mode. When the sensor has power supplied to it, the relay will actuate. The contact that is open “out of the box” or at “shelf state” will immediately close, and the closed contact will open.

Connect the power supply voltage to the appropriate terminals, being sure that the supplied power matches the sensor designed voltage. Energize the sensor power supply. The green “POWER” LED will light.

Set the desired trip point and the time delay adjustments.

When the primary current exceeds the trip point, the “TRIP” red LED will light.

If used, connect a panel meter or controller input module to the analog output terminals of the sensor. Note that when the relay output is set to trip at a current value of 150 amps or less, the analog signal will be capped at 6mA, if the trip point is between 160 and 300 amps, the analog output will be capped at 8mA. Using a trip point setting of 310 amps or more will allow the analog signal to rise to 20mA at 1200 amps, capped at 23 mA.

## Output Wiring

Connect control or monitoring wires to the sensor. Use up to 14 AWG copper wire and tighten terminals to 5 inch-pounds torque. Be sure the output load does not exceed the switch rating.

**CAUTION** Incandescent lamps can have “Cold Filament Inrush” current of up to 10 times their rated amperage. Use caution when switching lamps.

## Setpoint Adjustment

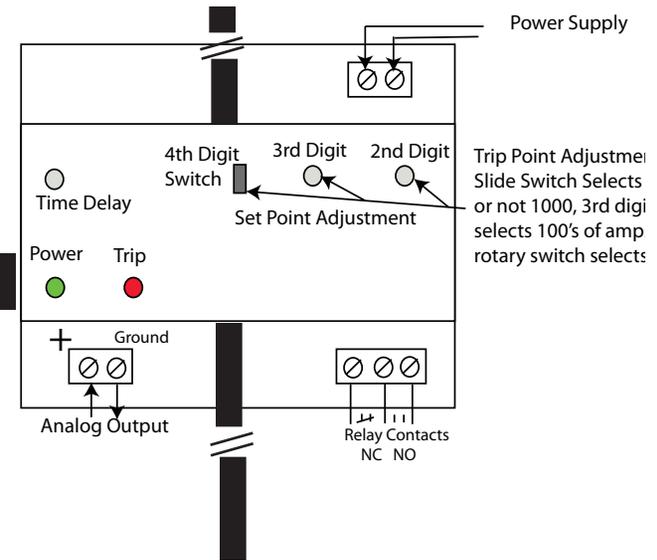
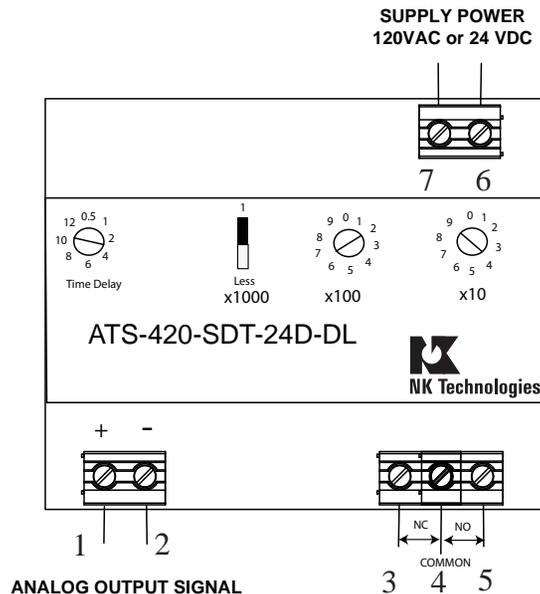
ATS Series setpoint and time delay are adjusted using a patented rotary switch method. The switch on the right side of the sensor adjusts for 0 to 90 amps in 10 amp increments. The second switch adjusts the trip point between 0 and 900 amps in 100 amp increments. A two position switch selects a trip point of either 0 or 1000 amps. To set a trip point of 520 amps, the first switch is turned to a value of 2, shown with a arrow on the adjustment knob and the label.

The second switch is turned to the value 5, and the third switch is set to zero or off.

To set a value of 1100 amps, set the first switch to zero, the second to 1, and the third to 1000 or on.

If delay before operation is needed, turn the time delay rotary switch to the value needed.

See drawing below:



## Trouble Shooting

- 1. Sensor is always tripped**
  - A. The setpoint may be too low. Turn the rotary switches to the proper setting for the current monitored.
  - B. Switch has been overloaded and contacts are burned out. Check the output load, remembering to include inrush on inductive loads (coils, motors, ballasts)
- 2. Sensor will not trip**
  - A. The setpoint may be too high. Turn the rotary switches to the proper value.
  - B. Monitored current is below minimum required. This sensor is designed to monitor high current, and can be set to trip at a minimum of 10 amps.
  - C. Switch has been overloaded and contacts are burned out. Check the output load, remembering to include inrush on inductive loads (coils, motors, ballasts).
- 3. Sensor trips on energization of monitored load.**
  - A. Set the delay before actuation to a higher level
- 3. Sensor trips as soon as power is applied.**
  - A. This is by design, providing fail safe reliability.