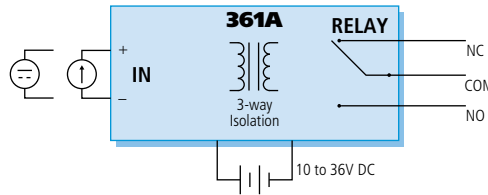




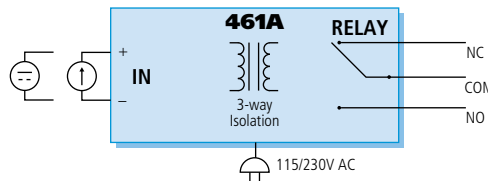
Relay Trips



361A DC-Powered Limit Alarm



461A AC-Powered Limit Alarm



361A and 461A Limit Alarms

These alarms accept DC voltage/current input signals and provide relay output if the input exceeds user-defined setpoint limits.

Numerous options and features make these alarms easy to use and well-suited for a wide range of limit monitoring and on/off controller applications. Three-way isolation eliminates ground loops to simplify installation. And for easier use in the field, these alarms withstand extreme temperatures and have accessible setpoint voltage test points. Other features include alarm/power status LEDs and independent setpoint and deadband adjustment pots.

Models

361A: DC-powered
461A: AC-powered

Input Ranges

- 0 to 20mA DC
- 0 to 1V, 0 to 5V, 0 to 10V, 0 to 50V, 0 to 100V DC
- 0 to 20A AC (with external AC current sensor)

Output

- Electromechanical SPDT dry contact sealed relays; CSA rated for 5A

Power Requirements

- 361A: 10 to 36V DC (0.9W max.)
- 461A:
115V AC (0.0320A) or
230V AC (0.016A)

Special Features

- 100% adjustable setpoint via 15-turn pot handles more applications and provides better resolution.
- 100% adjustable deadband via 15-turn pot prevents false trips and eliminates alarm chatter.
- Setpoint test points are accessible on front of unit for quick verification with digital voltmeter probe.
- Dual relays offer the flexibility of high/low, high/high, or low/low alarm setpoint operation.
- Three-way isolation eliminates ground loops.
- Jumper-selectable DC voltage or current input reduces inventory stock.
- Jumper-selectable failsafe operation enables alarm actuation on power loss in critical applications.
- Wide power supply range (361A) handles more applications to reduce inventory stock.
- DC power units (361A only) carry lower voltages and do not require expensive conduit for safer and easier installation.
- Diode-coupled power (361A only) supports the use of redundant power supplies for critical applications.
- Excellent accuracy, stability and no loose internal wiring ensure reliable alarm trips.

Performance

Input

- V1: 0 to 1V DC.
1M ohm input impedance or 0 to 20mA DC via 50 ohm internal resistor.
- V5: 0 to 5V DC.
1M ohm input impedance or 0 to 20mA DC via 250 ohm internal resistor.
- V0: 0 to 10V DC. 100K ohm input impedance.
- V50: 0 to 50V DC. 500K ohm input impedance.
- V100: 0 to 100V DC. 1M ohm input impedance.

AC current sensor (5020-350)

Used with -V1 input option only.
Input range is function of turns placed on sensor.
1 turn = 0 to 20A AC; 2 turns = 0 to 10A;
4 turns = 0 to 5A; 10 turns = 0 to 2A.

Setpoint adjust

0 to 115% of input span via 15-turn potentiometer.
Resolution better than 0.1% of span, continuous.

Deadband adjust (hysteresis)

1 to 100% of input span for each channel via 15-turn potentiometer(s). Adjustments are independent on dual alarm models.

Automatic reset (non-latching alarms)

The alarm resets to its non-alarm state as soon as input signal is outside of the selected deadband. If the deadband is set to its extreme (100%), then the alarm is effectively latching and will not reset till the input signal is at or below 0%.

Repeatability

Repeatability to better than $\pm 0.1\%$ of input span
Continued on the next page.



Performance

Continued from the previous page.

Output/Relays

Output

-SMRN: Single alarm.

One SPDT dry-contact sealed relay.

-DMRN: Dual Alarm, two SPDT relays.

Electrical Life - CSA Ratings:

25V DC, 5A, 100,000 operations, resistive.

48V DC, 0.8A, 100,000 operations, resistive.

120V AC, 5A, 30,000 operations, resistive.

240V AC, 5A, 30,000 operations, resistive.

Contact Material : Silver-cadmium oxide.

Breakdown Voltage: Between open contacts:

1000VAC rms. Between contacts and coil: 1500VAC rms, 50-60 Hz for one minute.

Mechanical Life: 20 million operations.

Response time

Fixed delay of 100mS (nominal). Relay transfers

≤100mS, typical, after input signal exceeds setpoint.

Relay transfers within 50mS after input passes dead-band, as it returns to normal range.

Power

Power requirement (361A)

10V to 36V DC.

Current draw is a function of supply voltage.

Currents specified are maximum values with the relay(s) energized.

Supply Voltage	Mechanical Relay Output	
	Single	Dual
10V	65mA	100mA
12V	50mA	75mA
15V	40mA	60mA
24V	30mA	40mA
36V	25mA	30mA

Power requirement (461A)

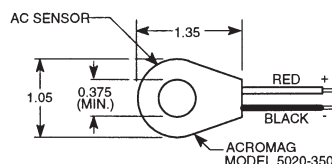
-1: 115V AC ±10%, 50 to 60Hz, 0.032A.

-2: 230V AC ±10%, 50 to 60Hz, 0.032A.

Power supply effect (461A)

Trip-point varies less than ±0.05% of input span.

AC Current Sensor



Ordering Information

Select one option from each column. Example: 461A-V5-DMRN-1-DIN-NCR-C

To order factory calibration, append "-C" to end of model number. Specify ranges on order.

Base	Input		Output	Mounting	Approval
361A	-V1	-V50	-SMRN	-DIN	-NCR
	-V5	-V100	-DMRN		
	-V0				

Note:
All 361As accept
10 to 36V DC
power supply.

Base	Input		Output	Power	Mounting	Approval
461A	-V1	-V50	-SMRN	-1	-DIN	-NCR
	-V5	-V100	-DMRN	-2		
	-V0					

See Ordering Notes for model number descriptions.

Environmental

Ambient temperature range

-13°F to 167°F (-25°C to 75°C).

Ambient temperature effect

Less than ±0.01% of output span per °F (±0.018% per °C) over the ambient range.

Isolation

Three way; input, contacts, and power are isolated from each other for common mode voltages up to 250V AC, or 354V DC, continuous (withstands 1500V AC for sixty seconds without breakdown).

Noise rejection

Common mode: Better than 100dB at 60 Hz, 250ohm unbalance, typical.

Normal mode: 26dB at 60 Hz, 250ohm source, typical.

RFI resistance

Unit will not trip under influence of RFI when input is ±0.5% of input span from setpoint voltage for RFI field strengths of up to 10V/meter, at frequencies of 27MHz, 151MHz, and 467MHz.

EMI resistance

Unit will not trip when input is ±0.25% of input span from setpoint voltage with switching solenoids or commutator motors.

Surge withstand capability (SWC)

Meets ANSI/IEEE C37.90-1978.

Physical

Construction

Circuit boards: Military grade FR-4 epoxy glass circuit board, 0.063 inches thick.

Coating: Fungus resistant acrylic conformal coat.

Terminals: Compression type, wire 14 AWG max.

Case: Self-extinguishing NYLON Type 6.6 polyamide thermoplastic, UL94 V-2. NEMA 1 enclosure.

Test points (setpoint): Accepts 0.080" dia. probe.

Mounting position: Position insensitive.

Ordering Notes

Input Options

-V1: 0 to 1V DC, 0 to 20mA DC, or 0 to 20A AC with AC current sensor

-V5: 0 to 5V DC or 0 to 20mA DC

-V0: 0 to 10V DC

-V50: 0 to 50V DC

-V100: 0 to 100V DC

Output Options

-SMRN: One SPDT relay, single setpoint alarm

-DMRN: Two SPDT relays, dual setpoint alarm

Power Options

-1: 115V AC power

-2: 230V AC power

Mounting Option

-DIN: DIN rail G or T mount

Approval Option

-NCR: No certification/approval required.

Accessories

Power supplies

See Power Supplies on Page 199.

5020-350

AC current sensor. (See page 205)

DIN RAIL 3.0 or DIN RAIL 16.7

DIN rail strip, Type T, 3 inches (75mm) or 16.7 inches (425mm)

20RM-16-DIN

19" rack-mount kit with DIN rail. Holds ten alarms.

350T-N4-WM

NEMA 4 water-tight enclosure, wall-mount.

Holds one 361A or 461A alarm.

350T-N12-WM

NEMA 12 oil-tight enclosure, wall-mount.

Holds one 361A or 461A alarm.