The ACI Series AmpFlasher™ from NK Technologies

Operation, Installation, Specifications, Features, and Applications

Introduction

The modern industrial landscape demands precision, efficiency, and reliability in the monitoring and control of electrical systems. One critical aspect of this environment is the ability to sense current flow with accuracy and speed. NK Technologies, a renowned provider of innovative electrical sensing solutions, addresses these demands for an **AC Current Indicator** (ACI) with the AmpFlasher ACI Series—an advanced current indicator and flasher module designed to simplify status indication and enhance safety in a wide range of electrical systems. Here we explore the ACI Series AmpFlasher in detail, focusing on its operation, technical specifications, core features, and typical applications.

Overview of the ACI Series AmpFlasher

The ACI Series AmpFlasher is a specialized device engineered to detect AC current flow and provide a visible flashing indication when current is present. The ACI Series incorporates robust detection circuitry and a bright visual indicator, making it ideal for monitoring contactors, fans, heaters, motors, and other electrically driven loads.

Key Functions

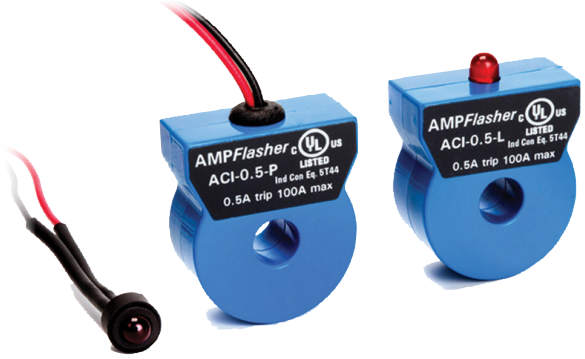
- Current Sensing: Detects the presence of AC current in a conductor without direct contact, ensuring safety and ease of installation.
- Visual Indication: Flashes a high-intensity LED when current above a preset threshold is detected, providing clear and immediate feedback to operators.
- Non-Intrusive Operation: Includes a built in LED, or an optional pig-tail wire for mounting the LED in a panel.

Specifications of the ACI Series AmpFlasher

Understanding the technical specifications is essential for selecting and deploying the ACI Series AmpFlasher in industrial settings. The following sections detail the key parameters and characteristics of this device.

Indicator and Output Specifications

- LED Indicator (Red): High-brightness, long-life LED provides flashing indication when sensed current exceeds threshold.
- Flashing Rate: Approximately 1 flash per second, optimized for visibility without excessive distraction.



- Threshold: The AmpFlasher is designed to ensure that the LED indicator will flash when currents of 0.5 A or higher are detected. However, the exact moment the LED turns on can vary, as noted below.

Indicator Operation

- The LED will be OFF at currents below 0.35 A.
- The precise "LED ON" threshold varies by unit and can be anywhere between 0.35 A and 0.5 A. This behavior is due to the self-powered nature of the indicator.
- The Red LED will be "ON" whenever the monitored current is within the "Indicating Range" of 0.5 A – 100 A.

Monitored Current (A)	LED State
0 to <0.35 Minimal Power	Off
0.35A to <0.5 Power Detected*	Turns On
0.5 to 100 A Indicating Range	On

** Depending on the individual unit, the LED will turn on and begin flashing within the 0.35 – 0.5 Amp range.*

Electrical Specifications

- Sensing Range: The ACI Series can detect AC currents from as low as 0.5 A up to 100 A. This broad range covers most industrial and commercial applications. See the section above on "Indicator Operation" for the exact behavior of the LED turning on.
- Operating Voltage: The device is designed to operate without an external power supply, drawing minimal power from the sensed current itself. This simplifies the wiring and increases reliability. It can safely monitor up to 300 VAC circuits, as long as the diameter of the monitored wire can fit inside the 0.30" aperture.

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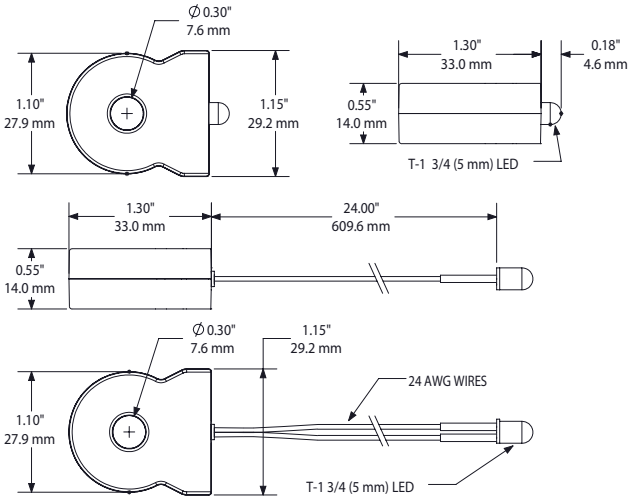
- Frequency Range: With a frequency range of 50-400 Hz, it is compatible with common 50 Hz and 60 Hz AC systems, making it suitable for global applications.
- Response Time: The AmpFlasher provides immediate visual feedback, typically with a response time of less than 120 milliseconds after current is detected.

Mechanical Specifications

- Case Material: The housing is constructed from durable, flame-retardant polycarbonate, and is UL94 V-0 Flammability rated for safety.
- Dimensions: Compact form factor, with typical dimensions approximately 1.2 x 1.3 x 0.55 inches (may vary by model). The pigtail model contains a 24" pigtail for attaching the LED to a panel.



  - The case aperture is 0.30", and the monitored wire must fit through this hole.
- Weight: Lightweight design at typical 0.8 oz (22.7 g)

Features and Benefits

Key Features

- Non-Contact Sensing: Enhances safety and simplifies installation, as there is no need to make direct electrical connections to live conductors.
- Self-Powered Operation: Eliminates the need for auxiliary power sources, reducing installation complexity and potential points of failure.
- Wide Current Range: Accommodates monitoring of both small control currents and larger load currents.
- Universal Compatibility: Suitable for a variety of equipment operating on 50 or 60 Hz power systems with its 50-400Hz frequency range.
- Maintenance-Free: Long-life solid-state design means no moving parts that can wear out over time.
- Instant Visual Feedback: Helps operators and maintenance personnel quickly identify energized circuits and troubleshoot faults.
- Compact and Versatile: Fits easily into crowded control panels and can be installed onto existing wiring systems.

Benefits

- Improved Safety: Operators can easily verify equipment status without risking exposure to live voltages.
- Reduced Downtime: Immediate indication of energized circuits aids in rapid troubleshooting and fault isolation.
- Cost-Effective: The low cost of the device, combined with its reliability and ease of installation, makes it a cost-effective addition to control systems.
- Adaptability: Available in two configurations to suit various panel layouts and application requirements.

Typical Applications

The ACI Series AmpFlasher from NK Technologies is suitable for a broad spectrum of industries and use cases:

- Motor Status Indication: Quickly verifies whether a motor is operating by sensing the current draw.
- Heater Monitoring: Indicates energized heater circuits in process control panels, ensuring safe maintenance procedures.
- Pump and Fan Monitoring: Used in HVAC and water treatment systems to confirm operational status at a glance.
- Lighting Circuit Indication: Monitors commercial and industrial lighting circuits for functional status checks.
- Breaker Panel Status: Provides a clear indication of live circuits in the breaker and distribution panels.
- OEM Equipment: Integrates into machinery as an accessory for troubleshooting and diagnostic purposes.

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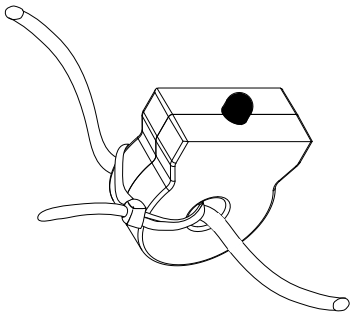
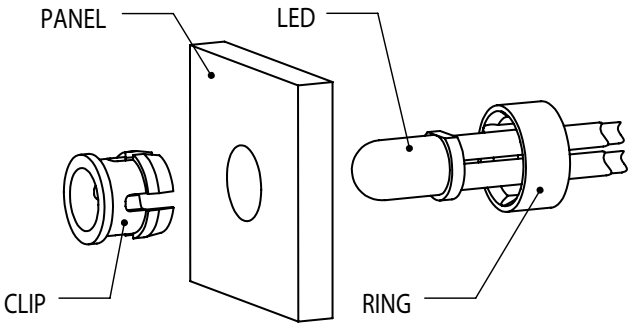
Installation and Operation

The ACI Series AmpFlasher is designed for quick and straightforward installation:

- Solid-Core Design: Requires threading the conductor through the sensor.
- To install, slide the AmpFlasher over the monitored wire. A zip tie is provided to help secure the AmpFlasher to the wire.



- Install the LED to the panel when using the pigtail model. This model comes with a clip and ring, allowing the LED to be attached to the panel. First, drill a 0.25" hole in the panel, then attach the LED using the clip and ring. The panel can range from 0.032 inches to 0.125 inches thick.



- Verification: Once installed, apply power and observe the LED indicator to verify proper operation.

Regulatory and Safety Compliance

NK Technologies ensures that the ACI Series AmpFlasher meets or exceeds relevant safety and regulatory standards. Devices typically comply with:

- UL (Underwriters Laboratories) recognition for industrial control equipment
- CE marking for compliance with European safety directives
- RoHS compliance for restrictions of hazardous substances

Summary

The ACI Series AmpFlasher represents a best-in-class solution for current detection and visual status indication in industrial and commercial electrical systems. With its wide current sensing range, robust construction, and user-friendly design, the ACI Series provides reliable, maintenance-free operation and clear indications that enhance safety and efficiency. Whether monitoring motors, heaters, or complex machinery, the AmpFlasher ensures that operators and maintenance personnel have immediate and intuitive feedback regarding circuit status.

For further information, consult the official documentation or contact our technical support for assistance with model selection and integration into your specific application.

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